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January 2006

Whistle Stop Project

Draft Environmental Impact Statement

Chugach National Forest
Kenai Peninsula Borough, Alaska

United States Department of Agriculture | Forest Service | Chugach National Forest | 3301 'C' Street Suite 300 Anchorage, AK 99503-3998

File Code: 1950
Date: January 17, 2006

Dear Friend of the Chugach,

Enclosed is your copy of the Draft Environmental Impact Statement (DEIS) for the Whistle Stop Project. The DEIS describes the Proposed Action, No-Action Alternative, and four action alternatives. This range of alternatives address the major issues identified from public comments and by Forest Service resource specialists.

My preferred alternative is Alternative 2 which primarily addresses the issues of recreation settings (social) and impacts to wildlife throughout the Whistle Stop Project area. The issue of recreation settings (social) is addressed through a decrease in the size of the proposed group use area and a decrease in the number of dispersed, hardened campsites. Impacts to wildlife are addressed on a project-wide basis through a reduction in the size and number of recreation facilities mentioned above. In addition, Alternative 2 eliminates the Hunter Whistle Stop and rafting facilities within the Brown Bear Core Area.

As the deciding official, I am responsible for choosing an alternative that will follow Forest Plan guidance and determining any mitigation measures that will be required.

Your comments will be accepted for 45 days following the publication of a notification of availability in the Federal Register. The purpose of this comment period is to provide an opportunity for comment on the DEIS prior to the completion of the Final EIS and Record of Decision. It is the responsibility of persons providing comments to submit them by the close of the comment period. Please send comments through any of the avenues listed below:

Glacier Ranger District, P.O. Box 129, Girdwood, AK 99587-0129
Attn: Adam McClory
Phone: (907) 754-2352
Fax: (907) 783-2094
Email: comments-chugach-whistle_stop@fs.fed.us

Additional information regarding this action, including a copy of the DEIS, can be obtained from the following address:

Chugach National Forest Supervisors Office
3301 C St., Suite 300
Anchorage, AK 99503-3998
(907) 743-9500

In addition, the DEIS can be viewed and downloaded from the Chugach National Forest web site at http://www.fs.fed.us/r10/chugach.

Sincerely,

JOE L. MEADE
Forest Supervisor

Abstract

This Environmental Impact Statement (EIS) provides the analysis of the Proposed Action and five alternatives considered for development and implementation of the Whistle Stop Project. The Whistle Stop Project has been developed through a partnership between the U.S. Forest Service and the Alaska Railroad Corporation.

This Draft EIS has been prepared pursuant to Section 102 (2) (c) of the National Environmental Policy Act of 1969, as amended (NEPA). In accordance with NEPA, this EIS documents the detailed analysis of environmental impacts of implementing the Proposed Action and five alternatives considered. This analysis focuses on the direct, indirect, and cumulative impacts to the physical, biological, and social aspects on the human environment. The alternatives to the Proposed Action include No Action, as required by NEPA, and action Alternatives 1, 2, 3 and 4. The EIS also discusses the purpose and need for the Proposed Action, describes the affected environment, and identifies potential mitigation measures to lessen any impacts.

The Forest Service is the lead agency undertaking this NEPA process and is responsible for the decisions made in consideration of it.

Reviewers have 45 days to comment on this document. The Forest Service will analyze and respond to the comments and will use this information to prepare a Final EIS. Reviewers have an obligation to structure their participation in the NEPA process so that it is meaningful and alerts the agency to the reviewers' position and contentions (Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553, [1978]). Objections that could have been raised at the draft stage may be waived if not raised until after completion of the Final EIS (City of Angoon v. Hodel [9th Circuit, 1986] and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 [E.D. Wis. 1980]).

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Draft Environmental Impact Statement for the Whistle Stop Project

January 2006

United States Department of Agriculture
Forest Service – Alaska Region

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Summary

Introduction

The Chugach National Forest (CNF), in partnership with the Alaska Railroad Corporation (ARRC), has proposed to develop the Whistle Stop Project, designed to provide access to backcountry recreation opportunities on National Forest System (NFS) lands on the Kenai Peninsula between Portage and Moose Pass. The Draft Environmental Impact Statement (DEIS) assesses and discloses the potential environmental effects of developing this project.

Purpose and Need

The purpose and need for this project is to:

1. Provide additional backcountry access and increase recreation opportunities available to Chugach National Forest visitors.

2. Provide opportunities for visitor information and education.

3. Provide a unique transportation and recreation experience found nowhere else in the United States, while encouraging alternative transportation and public safety.

Proposed Action

The Proposed Action, utilizing approximately 25 miles of Alaska Railroad track between Luebner Lake and Trail Creek, aims to provide various facilities capable of meeting the diverse needs of visitors hoping to engage in either a day use or multi-day adventure into a remote area of the Chugach National Forest. As the area currently does not have recreation facilities available, the Proposed Action will facilitate opportunities for a wide variety of recreation experiences. Whistle Stop service is proposed to be available from approximately mid-May to mid-September, with the majority of facilities available during this time only. The proposed recreation facilities include up to six developed Whistle Stops and supporting recreation development; a trail system connecting four of the Whistle Stop sites; wildlife/scenic viewing platforms; and a variety of overnight accommodations, including public-use cabins and dispersed campsites.

Issues

NEPA requires that the public and other agencies be involved in federal agency decision-making. An important part of this process is scoping. Council of Environmental Quality (CEQ) regulations refer to scoping as a process to determine the scope of the issues to be addressed in an EIS and to identify the significant issues related to a proposed action (40 CFR 1501.7).

The major steps in the scoping process for this project included: 1) sending a notice to agencies, organizations, media, and individuals about the proposal and inviting comment; 2) holding public meetings in Anchorage, Seward, Girdwood, Moose Pass, Cooper Landing and Soldotna to discuss the proposal and accept comments; 3) listing the project in the Chugach National Forest Schedule of Proposed Actions beginning in April 2005; and 4) publishing in the Federal Register a Notice of Intent to prepare an EIS.

As a result of the scoping process, four issues were identified which guided the analysis documented in this EIS.

Issue 1: Recreation settings (physical)
Recreation facility development has the potential to negatively impact the backcountry environment of the project area.

Concern was expressed regarding the level of recreation facility development proposed in the project area. Respondents noted that with development of the proposed level of recreation facilities, the area would not maintain the backcountry environment that is being promoted. Suggestions to minimize the impact of facility development included reducing the number of or eliminating facilities such as cabins, individual and group campsites, and viewing platforms.

Issue 2: Recreation settings (social)
Increased visitation to the project area will raise the number of encounters and alter the backcountry feel of the area.

Concerns indicated that with enhanced transportation to multiple sites in the project area, visitation would increase and potentially impact the social experience (number of encounters) for Forest users. This would alter the current remote, backcountry feel of the area. Suggestions to minimize the number of encounters included dispersing recreation use, rather than concentrating it at specific recreation facilities.

Issue 3: Interaction between Mining and Recreation
Recreation and mining may not be compatible activities in the project area.

Comments described potential conflicts with mining and recreational activity occurring in relative proximity in the Spencer Lake area. Some respondents felt that there was no way to effectively allow the two uses to exist in the same location, while others responded that both uses could potentially be accommodated in the same general area.

Issue 4: Wildlife Impacts

The location of some proposed recreation facilities and encouraging people to use these facilities will negatively impact resident wildlife species and populations.

While the majority of wildlife concerns focused on potential impacts to brown bears, some respondents expressed concern with the effects of project development on all resident wildlife populations. Specifically, concern was expressed that the introduction of more people into the area would ultimately result in a population decline for a variety of wildlife species.

The Alternatives

Based on the preliminary issues, the Interdisciplinary Team developed five alternatives to the proposed action put forth by the Forest Service. Included in the range of alternatives is the "No Action" alternative as required by NEPA (40 CFR 1502.14(d)).

No Action Alternative

The No Action alternative would result in no direct change to the Whistle Stop Project area. The existing location for raft put-in at Spencer Lake and take-out at Luebner Lake as well as the existing road system in the Spencer area will remain unchanged. None of the proposed recreation facilities outlined in the Proposed Action will be constructed.

Proposed Action

The Proposed Action alternative differs only slightly from the information that was put forth in the initial public scoping package. Differences consist of removing the Grandview Boardwalk Trail and viewing platform; the Spencer Overlook Trail is now part of the Glacier Discovery Trail; and the Spencer non-motorized connector trail has been changed from a Class 3 to Class 4 trail. With the Proposed Action, summer recreation use may increase substantially in the project area, both for day and overnight use. There may be a limited increase in winter recreation due to availability of Forest Service public-use cabins located outside of avalanche zones. Development of the proposed recreation facilities will follow Forest Plan direction and meet goals and objectives stated in the Forest Plan.

Alternative 1
Alternative 1 was primarily developed to address the issue of interaction between mining and recreation in the Spencer area. In Alternative 1, all proposed recreation facilities in the Spencer Lake area would be located south of the Spencer Lake outlet (except for the trail section between Luebner Lake and Spencer and the motorized connector road at Spencer). The majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Grandview, Luebner Lake, Bartlett Glacier, Hunter and Trail Creek Whistle Stops.

Alternative 2
Alternative 2 was primarily developed to address the issue of recreation settings (social). In Alternative 2, there would be less construction of recreation facilities throughout the entire project area. Similar to the Proposed Action, the majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Grandview, Luebner Lake, Bartlett Glacier, and Trail Creek Whistle Stops.

Alternative 3
Alternative 3 was primarily developed to address the issue of recreation settings (physical). In Alternative 3, the proposed trail system would be developed (with the exception of the Trail Glacier Trail) and the majority of the additional proposed facilities would not be developed with this alternative. A higher amount of trail miles are still focused in the Spencer Lake area, therefore there is still the potential for higher recreation activity in this geographic area as compared to other sites throughout the project area.

Alternative 4
Alternative 4 was primarily developed to address the issue of wildlife impacts. With this alternative, the focus is on removing the proposed facilities in the Brown Bear Core Management Area Prescription, which would minimize potential impacts to Brown Bears. Alternative 4 would not develop Whistle Stop stations or any recreation facilities throughout the Brown Bear Core Management Area, thereby eliminating project related recreation activity in this geographic area. Similar to the Proposed Action, the majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Luebner Lake and Bartlett Glacier Whistle Stops.

Environmental Consequences
The results of NEPA analysis should clearly contrast the direct, indirect, and cumulative environmental impacts of the proposed action and alternatives. The table below summarizes and compares the six alternatives.

Whistle Stop Project DEIS Proposed Alternatives

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Whistle Stop Stations						
Luebner Lake	No	Yes	Yes	Yes	Yes	Yes
Spencer Glacier	No	Yes	Yes	Yes	Yes	Yes
Bartlett Glacier	No	Yes	Yes	Yes	Yes	Yes
Grandview	No	Yes	Yes	Yes	Yes	No
Hunter	No	Yes	Yes	No	No	No
Trail Creek	No	Yes	Yes	Yes	No	No
Viewing Platforms						
Luebner Lake	No	2 viewing platforms	1 viewing platform	1 viewing platform	No	2 viewing platforms
Grandview Interpretive Trail	No	1 viewing platform	1 viewing platform	1 viewing platform	No	No
Spencer Lake	No	1 viewing platform	1 viewing platform	1 viewing platform	No	1 viewing platform
Rafting take out locations						
Luebner Lake	1 take-out	1 take-out	1 take-out	1 take-out	No	1 take-out
Trail Creek	No	1 take-out	1 take-out	No	No	No
Rafting put in locations						
Spencer Lake	1 put-in	1 put-in	1 put-in	1 put-in	No	1 put-in
Hunter	No	1 put-in	1 put-in	No	No	No
Information center						
Spencer Lake Info. and Educ. Yurt	No	Yes	Yes	Yes	No	Yes

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Dispersed campsites						
Spencer Glacier Trail	No	12 sites	6 sites	6 sites	0	6 sites
Glacier Discovery Trail	No	24 sites	24 sites	10 sites	0	24 sites
Whistle Stop stations	No	2 sites/station (12 total)	2 sites/station (12 total)	2 sites/station (10 total)	2 sites/station (8 total)	2 sites (6 total)
Cabins						
Spencer Bench	No	Yes	Yes	Yes	No	Yes
Spencer Lake cluster (3 cabins)	No	Yes	Yes	Yes	No	Yes
Bartlett Glacier	No	Yes	Yes	Yes	No	Yes
Trail Glacier	No	Yes	Yes	Yes	No	No
Dispersed group use area						
Spencer Lake	No	1 150-person site	1 25-person site	3 25-person sites	No	1 50-person site

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Trails						
Glacier Discovery Trail:						
Luebner-Spencer Segment (8 mi.)	No	Yes	Yes	Yes	Yes	Yes
Spencer-Bartlett Segment (6 mi.)	No	Yes	Yes	Yes	Yes	Yes
Bartlett-Grandview Segment (4 mi.)	No	Yes	Yes	Yes	Yes	No
Spencer Glacier Trail	No	Yes (North Shore)	Yes (South Shore)	Yes (North Shore)	Yes (North Shore)	Yes (North Shore)
Spencer non-motorized connector Trail	No	Yes	Yes	Yes	Yes	Yes
Bartlett Glacier Trail	No	Yes	Yes	Yes	Yes	Yes
Grandview Interpretive Trail	No	Yes	Yes	Yes	Yes	No
Trail Glacier Trail	No	Yes	Yes	Yes	No	No
Center Creek Pass Trail	No	Yes	Yes	Yes	Yes	Yes

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Trail Class						
Glacier Discovery Trail:						
Luebner-Spencer Segment (8 mi.)	No	Class 3	Class 3	Class 3	Class 3	Class 3
Spencer-Bartlett Segment (6 mi.)	No	Class 3	Class 3	Class 3	Class 3	Class 3
Bartlett-Grandview Segment (4 mi.)	No	Class 3	Class 3	Class 3	Class 3	No
Spencer Glacier Trail	No	Class 4	Class 4	Class 4	Class 4	Class 4
Spencer non-motorized connector Trail	No	Class 4	Class 4	Class 4	Class 4	Class 4
Bartlett Glacier Trail	No	Class 3	Class 3	Class 3	Class 3	Class 3
Grandview Interpretive Trail	No	Class 4	Class 4	Class 4	Class 4	No
Trail Glacier Trail	No	Class 3	Class 3	Class 3	No	No
Center Creek Pass Trail	No	Class 3	Class 2	Class 2	Class 2	Class 2

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Trail Managed Use						
Glacier Discovery Trail:						
Luebner-Spencer Segment (8 mi.)	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike
Spencer-Bartlett Segment (6 mi.)	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike
Bartlett-Grandview Segment (4 mi.)	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	No
Spencer Glacier Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	Hiker only
Spencer non-motorized connector Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	Hiker only
Bartlett Glacier Trail	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike
Grandview Interpretive Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	No
Trail Glacier Trail	No	Hike, Bike	Hike, Bike	Hike, Bike	No	No
Center Creek Pass Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	Hiker only
Roads						
Spencer motorized connector	Yes	Yes	Yes	Yes	No	Yes

Reader's Guide

The following provides an overview of the components of this document.

Summary: The summary provides a concise overview of the Draft EIS, including the purpose and need, a description of the alternatives, and a comparison of the environmental effects of the proposed action and alternatives.

Table of contents: A table of contents is presented at the beginning of this document.

Chapter 1 – Purpose and Need: This chapter includes the Proposed Action, outlines the purpose and need for the action, summarizes the environmental review process, identifies Forest Service consistency with the Proposed Action, lists public involvement and issues to be considered identified through scoping, and states the decision to be made.

Chapter 2 – Alternatives: This chapter describes the six alternatives analyzed in detail, presents the mitigation requirements that would be in place under any action alternative, and compares the environmental impacts anticipated under each alternative.

Chapter 3 – Affected Environment and Environmental Consequences: This chapter describes information on wildlife, recreation and other resources that would be affected by the alternatives. It is followed by disclosure of the direct, indirect, and cumulative environmental impacts of the Proposed Action and each alternative.

Chapter 4 – Lists: This chapter identifies a list of DEIS recipients, list of agency preparers, and includes references used in the document.

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Chapter 1: Purpose and Need

Introduction

The Chugach National Forest (CNF), in partnership with the Alaska Railroad Corporation (ARRC), has proposed to develop the Whistle Stop Project, designed to provide access to backcountry recreation opportunities on National Forest System (NFS) lands on the Kenai Peninsula between Portage and Moose Pass via the Alaska Railroad. The United States Department of Agriculture (USDA) Forest Service has prepared this draft environmental impact statement (DEIS) in accordance with the National Environmental Policy Act (NEPA) to assess and disclose the potential environmental effects of development of railroad supported recreation infrastructure between Portage and Moose Pass. Direct, indirect, and cumulative impacts and any irreversible or irretrievable commitments of resources that would result from the Proposed Action and the alternatives are disclosed in this document. Five alternatives to the proposed action are presented and analyzed.

The objectives for this project are to:

1. Provide additional backcountry access and increase recreation opportunities available to Chugach National Forest visitors.

2. Provide opportunities for visitor information and education.

3. Provide a unique transportation and recreation experience found nowhere else in the United States, while encouraging alternative transportation methods and public safety.

Current conditions

Presently, there is limited recreation activity in the project area due in large part to the absence of recreation facility infrastructure and the closure of ARRC track to public access for safety reasons. Minimal independent use occurs with adventurous backcountry trips, mainly on existing waterways, but also through cross-country travel and air travel. The entire project area is bisected by the existing Alaska Railroad tracks and various buildings along the tracks that are utilized by the ARRC for infrastructure maintenance. Past mining activity is also clearly visible, particularly in the Spencer Glacier area. Here, both exposed and manufactured rocks, as well as a small developed road system are present today. In the Spencer area, there are approximately 400 acres of existing mining claims and the Chugach National Forest has put forth a solicitation of interest for mineral materials in the Spencer Glacier area.

Purpose and Need

The Forest Service seeks to respond to the growing demand for recreation opportunities and recreation-based tourism by enhancing a railway infrastructure through a series of interconnected recreation sites that will provide the public with a unique recreation and travel experience not found anywhere else in the United States. Utilizing the existing infrastructure of the Alaska Railroad, the Forest Service Proposed Action aims to create an array of primarily backcountry recreation opportunities for users of the Chugach National Forest. Access would be gained to spectacular ice-capped mountains, glacial lakes, wild rivers and dispersed backcountry campsites, cabins and trails, with transportation provided through Alaska Railroad passenger service.

Completion of this project will allow Chugach National Forest visitors to get out and experience National Forest lands instead of viewing them through the "glass window" that currently exists for the majority of Alaska Railroad passengers traveling through this scenic corridor.

The purpose and need for this project is to:

1. Provide additional backcountry access and increase recreation opportunities available to Chugach National Forest visitors.

With a large land base in the eastern Kenai Peninsula and few existing backcountry recreation facilities, the proposed mix of trails, overnight facilities, viewing platforms and information and education sites will help meet the recreation needs of Chugach National Forest visitors. Recreation use would be better spread throughout the Kenai Peninsula thereby providing users with a more remote Alaskan backcountry experience. It has been documented that the most desired types of activities Chugach National Forest visitors prefer to engage in include hiking, overnight camping and viewing wildlife (Colt, et. al 2002, Brooks and Haynes, 2001). Furthermore, many Chugach National Forest cabins have been operating near capacity (Colt, et. al 2002), particularly on the Seward Ranger District due to the fact that the majority of these cabins are accessed from roads and trails. Without additional cabin development on the Chugach, there is the potential to turn away Forest visitors hoping to engage in this recreational opportunity. Additionally, without development of the proposed recreation facilities, users may continue to experience feelings of crowding at existing Forest Service recreation sites on the Kenai Peninsula. Finally, the demand for additional backcountry access is growing and a portion of this demand will be met by utilizing the existing Alaska Railroad infrastructure, which will not necessitate development of new roads.

2. Provide opportunities for visitor information and education.

The *Chugach National Forest Revised Land and Resource Management Plan* (Revised Forest Plan) emphasizes the need to provide Forest visitors with information and education regarding Forest resources (Forest Plan, 3-8 and 3-9). From the glacial movement evident at Spencer Lake, to the dynamic hydrological activity, to the historical remnants scattered along the Alaska Railroad, the Forest Service can provide a diverse view of the natural and human history of the area. Additionally, both Alaska residents and visitors alike are drawn to the annual spawning of various fish species and the incredible diversity of wildlife found in Alaska including brown and black bears, moose, wolves, Dall sheep and mountain goats. Located at each Whistle Stop station and throughout the inter-connected trail system, kiosks will interpret the important aspects of each geographical area.

3. Provide a unique transportation and recreation experience found nowhere else in the United States, while encouraging alternative transportation methods and public safety.

Alaska is famous for and attracts a tremendous number of tourists because of its immense glaciers and ice-capped mountains. Availability of Alaska Railroad transportation to view these natural features can provide incentive for visitors to take alternate transportation as opposed to driving the Seward Highway. Therefore, Railroad transportation will allow visitors opportunities to view the backcountry of the Chugach National Forest and simultaneously access diverse recreation opportunities without dependence on cars.

Implementation of the Whistle Stop project will help achieve direction outlined in the Revised Forest Plan. Forest-wide direction identifies Recreational Opportunities, Access and Facilities as a major area of emphasis to be accomplished through Forest Plan implementation (Forest Plan, 3-1, 3-7 through 3-9). Three goals identified in this section of the Revised Forest Plan will be met with implementation of the Whistle Stop project including:

- maintaining quality settings for non-motorized recreation opportunities;
- providing recreation opportunities for interpretation and education as related to all Forest resources; and
- expanding recreational capacity by developing new recreational facilities and trails in response to user demands and where appropriate to management area objectives (Forest Plan, 3-8, 3-9).

For the Kenai Peninsula Geographic Area, where the Whistle Stop project is located, the Forest Plan directs that

> "during the summer season non-motorized use will predominate across the area. These opportunities will include hiking, camping, mountain biking, fishing, hunting and mountaineering with opportunities for canoeing, rafting and other forms of boating on lakes and rivers…Campgrounds or similar developments (i.e., "Whistle Stop") along the Alaska Railroad between Moose Pass and Portage may also be available' (Forest Plan, 3-15)."

The Proposed Action

The Proposed Action, utilizing approximately 25 miles of Alaska Railroad track between Luebner Lake and Trail Creek aims to provide various facilities capable of meeting the diverse needs of visitors hoping to engage in either a day use or multi-day adventure into a remote area of the Chugach National Forest. As the area currently does not have recreation facilities available, the Proposed Action will facilitate opportunities for an array of recreation opportunities appropriate in a primarily backcountry setting. Whistle Stop service is proposed to be available from approximately mid-May to mid-September, with the majority of facilities available during this time only (the major exception being public-use cabins near the Spencer Glacier Whistle Stop that are not in avalanche terrain and may be used year-round). The Whistle Stop Project will be implemented in phases as funding becomes available. The anticipated sequence of construction is Spencer, Grandview, Luebner, Bartlett, Hunter and Trail Creek. Recreation facilities will not be constructed until the associated station is developed.

The proposed recreation facilities include six developed Whistle Stops and supporting recreation development; a trail system connecting four of the Whistle Stop sites; wildlife/scenic viewing opportunities; and a variety of overnight accommodations, including public-use cabins and dispersed campsites. The majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Grandview, Luebner Lake, Bartlett Glacier, Hunter and Trail Creek Whistle Stops. Following is a complete description of all the elements of the Proposed Action, representing the planned, full-build out of facilities.

Maps for each site and the entire project area are located within Chapter 2 and information on all alternatives considered is available in a tabular form at the end of that chapter. Due to the limited recreation infrastructure proposed at the Hunter and Trail Creek Whistle Stops, these locations are identified on the Project Overview map only, and not included in the more detailed maps displaying recreation infrastructure on the north and south ends of the project area. The following recreation infrastructure is proposed at each Whistle Stop station:

Spencer Glacier Whistle Stop

The Spencer Glacier site is the "flag ship" of the entire proposal due to its exceptional scenic qualities and relative closeness to Anchorage. Consequently, Spencer Glacier is expected to be a popular destination. Spencer Lake and Glacier provide unique opportunities for viewing spectacular scenery. Given the terrain and vegetation, this area is capable of providing a variety of recreation opportunities and of supporting a larger number of people at one time compared to the other Whistle Stops.

The Spencer Glacier Whistle Stop includes the following facilities/developments:

- One fully accessible Whistle Stop station with a waiting shelter, vault toilet and information kiosk
- Two fully accessible dispersed, hardened campsites within 1 mile of the Whistle Stop station
- A fully accessible designated area on the shore of Spencer Lake for viewing scenery/wildlife (platform or hardened site)
- An area for commercial rafting operations and the general public to stage float trip departures
- A dispersed group-use area between the railroad and the lake for larger groups (up to 150 people)
- A fully accessible trail from the station to the viewing platform (approximately 1 mile) and lake shore
- A motorized route between the station and the outfitter/guide staging area (approximately 1 mile)
- A fully accessible trail from the lake shore to the Spencer Glacier (approximately 1 mile) referred to as the Spencer Glacier Trail
- A trail connecting to the proposed Hut-to-Hut trail system (being analyzed in a separate Environmental Impact Statement) referred to as the Center Creek Pass Trail (approximately 5 miles)
- Along the Spencer Glacier Trail, approximately 12 walk-in dispersed camping sites
- A public-use cabin located on a short spur trail off the Glacier Discovery Trail (described later) at the top of Spencer Bench
- South of the Whistle Stop site, up to 3 recreation cabins, clustered
- An agency information and education yurt

Luebner Lake Whistle Stop
Luebner Lake is the northern most Whistle Stop in the system. This site serves primarily as the take-out point for raft trips beginning at Spencer Lake. Additionally, there are excellent opportunities for viewing wildlife and fishing. Luebner Lake is also the northern end of the Glacier Discovery Trail.

The Luebner Lake Whistle Stop includes the following facilities/developments:

- One fully accessible Whistle Stop station with a waiting shelter, vault toilet and kiosk
- Two dispersed, hardened campsites within 1 mile of the Whistle Stop station
- Approx. 1500 feet of accessible elevated boardwalk from the station to the edge of Luebner lake and 2 viewing platforms (Glacier Discovery Trail will connect to this boardwalk)
- An area for commercial rafting operations and the general public to take-out from the Placer River

Bartlett Glacier Whistle Stop
Bartlett Glacier is a natural mid-point between the stops of Spencer and Grandview and provides visitors with the shortest hike to a glacier along the entire route. Additionally, this Whistle Stop provides an ideal rest location along the Glacier Discovery Trail between Spencer and Grandview.

The Bartlett Glacier Whistle Stop includes the following facilities/developments:

- One fully accessible Whistle Stop station with a waiting shelter, vault toilet and information kiosk
- Two dispersed, hardened campsites within 1 mile of the Whistle Stop station
- A trail connecting the Whistle Stop station to the base of Bartlett Glacier (approximately 1 mile) referred to as the Bartlett Glacier Trail
- A public-use cabin located on a short spur trail off the Bartlett Glacier Trail

Grandview Whistle Stop
As the elevational high point of this rail route, the Grandview area provides excellent opportunities for scenic views of the surrounding valleys, mountains and glaciers. This stop serves as the southern terminus of the Glacier Discovery Trail and provides opportunities for both day and overnight use. The Grandview Whistle Stop is flanked by 320 acres of State of Alaska Department of Natural Resources Land to the north, south, east and west. Facilities proposed here may require appropriate authorization from the State of Alaska Department of Natural Resources, depending on final location.

The Grandview Whistle Stop includes the following facilities/developments:

- One fully accessible Whistle Stop station with a waiting shelter, vault toilet and information kiosk

- Two dispersed, hardened campsites within 1 mile of the Whistle Stop station
- A highly developed trail (approximately 1 mile) with an associated viewing platform referred to as the Grandview Interpretive Trail
- A trail connecting the Whistle Stop to the base of Trail Glacier (approximately 4 miles) referred to as the Trail Glacier Trail
- A public-use cabin located on a short spur trail off the Trail Glacier Trail

Hunter Whistle Stop
Hunter serves primarily to provide wild and remote rafting opportunities for commercial and private users to float Trail Creek.

The Hunter Whistle Stop includes the following facilities/developments:

- One fully accessible Whistle Stop station with a waiting shelter, vault toilet and information kiosk
- Two dispersed, hardened campsites within 1 mile of the Whistle Stop station
- An area for commercial rafting operations and the general public to stage float trip departures

Trail Creek Whistle Stop
Trail Creek is the southern terminus of the project area and serves as a take-out location for commercial and private users floating Trail Creek. Additionally, this location would provide users with a connection to backpacking opportunities on the Iditarod National Historic Trail.

The Trail Creek Whistle Stop includes the following facilities/developments:

- One fully accessible Whistle Stop station with a waiting shelter, vault toilet and information kiosk
- Two dispersed, hardened campsites within 1 mile of the Whistle Stop station
- An area for commercial rafting operations and the general public to take-out from Trail Creek

Glacier Discovery Trail
The Glacier Discovery Trail would be the connection that links the Whistle Stops at Luebner Lake, Spencer Glacier, Bartlett Glacier and Grandview. This trail system would allow visitors the opportunity to conduct both short day hikes between Whistle Stop stations and overnight hikes, beginning at one station and getting picked up days later at a different location.

The Glacier Discovery Trail includes the following facilities/developments:

- A trail following the Placer River Valley, stretching approximately 18 miles and connecting the Whistle Stops at Luebner Lake, Spencer Glacier, Bartlett Glacier and Grandview

- Constructed to Trail Class 3 standards, with an obvious and continuous trail tread
- Twenty-four hardened, dispersed campsites developed along the trail system

Train service
The Forest Service and Alaska Railroad have identified the potential to conduct four daily round-trips between mid-May and mid-September, adding to the existing train activity in the project area (for a more detailed explanation of current train service, see Chapter 3). Each round trip (i.e., Portage to Trail Creek and back), taking approximately 4 hours to complete, will potentially stop at a different combination of Whistle Stops each trip.

Forest Plan Consistency

The *Revised Land and Resource Management Plan for the Chugach National Forest* (Revised Forest Plan) (USDA – Forest Service 2002a), *Final EIS* (USDA – Forest Service 2002b), and *Record of Decision* (USDA – Forest Service 2002c) were approved on May 31, 2002. This DEIS is tiered to these documents.

This Draft Environmental Impact Statement will define the size and shape of the Developed Recreation Complex Management Area that was identified in the Forest Plan. Once these boundaries are defined, there will be a change to the acreage of the Backcountry Management Area and it will be updated on the Forest Map.

A review of the proposed action and the Revised Forest Plan shows that all the activities proposed are consistent with the Forest Plan and that no amendment will be required.

Public Involvement and Issues to be Considered

NEPA requires that the public and other agencies be involved in federal agency decision-making. An important part of this process is scoping. CEQ regulations refer to scoping as a process to determine the scope of the issues to be addressed in an EIS and to identify the significant issues related to a Proposed Action (40 CFR 1501.7). The major steps in the process for this DEIS included:

- The project was listed in the Chugach National Forest Schedule of Proposed Actions (SOPA) beginning in April 2005. The SOPA can be found on the Chugach National Forest web site (www.fs.fed.us/r10/chugach) and is updated quarterly.

- A Notice of Intent to prepare an EIS was published in the Federal Register on May 16, 2005 (Volume 70, Number 93).

- Six public meetings were held in Anchorage, Seward, Girdwood, Moose Pass, Cooper Landing and Soldotna, between May 23 and June 1, 2005.

- A notice describing the proposal, outlining the NEPA review process, and inviting comment was distributed to media outlets, agencies, groups, and individuals beginning on May 16, 2005. During the 30-day scoping period, 12 comments were received. Three additional comments were received after the 30-day scoping period had expired.

As a result of the scoping process, four issues were identified. These issues guided the analysis documented in this DEIS and are summarized below.

Issue 1: Recreation settings (physical)
Recreation facility development has the potential to negatively impact the backcountry environment of the project area.

Concern was expressed regarding the level of recreation facility development proposed in the project area. Respondents noted that with development of the proposed level of recreation facilities, the area would not maintain the backcountry environment that is being promoted. Suggestions to minimize the impact of facility development included reducing the number of or eliminating facilities such as cabins, individual and group campsites, and viewing platforms.

To contrast the Proposed Action and alternatives based on this issue, our analysis focuses on the number and type of recreation facilities that would be developed in the project area. The following units of measure will be used in our effects analysis:

Number of:
- Whistle Stop stations
- Public-use cabins
- Dispersed, hardened campsites
- Viewing platforms
- Rafting put-in/take-out locations
- Dispersed group use areas
- Trail miles
- Information and education yurt (yes/no)

Issue 2: Recreation settings (social)
Increased visitation to the project area will raise the number of encounters and alter the backcountry feel of the area.

Concerns indicated that with enhanced transportation to multiple sites in the project area, visitation would increase and potentially impact the social experience (number of encounters) for Forest users. This would alter the current remote, backcountry feel of the area. Suggestions to minimize the number of encounters included dispersing recreation use, rather than concentrating it at specific recreation facilities.

To contrast the Proposed Action and alternatives based on this issue, our effects analysis focuses on changes in the social experience of the alternatives beyond existing conditions. Specifically, analysis will detail the number and type of recreation facilities that would be developed in the project area and how different combinations of recreation facilities have the potential to introduce different numbers of users (and hence, encounters) into certain geographical locations.

Issue 3: Interaction between Mining and Recreation
Recreation and mining may not be compatible activities in the project area.

Comments described potential conflicts with mining and recreational activity occurring in relative proximity in the Spencer Lake area. Some respondents felt that there was no way to effectively allow the two uses to exist in the same location, while others responded that both uses could potentially be accommodated in the same general area.

To contrast the Proposed Action and alternatives based on this issue, our effects analysis focuses on the impacts of mining activity on the recreational experience. In particular the following topics will be analyzed:

- Impact of noise related to mining activity in the area
- Visual impact of mining related activity in the area

Issue 4: Wildlife Impacts
The location of some proposed recreation facilities and encouraging people to use these facilities will negatively impact resident wildlife species and populations.

While the majority of wildlife concerns focused on potential impacts to brown bears, some respondents expressed concern with the effects of project development on all resident wildlife populations. Specifically, concern was expressed that the introduction of more people into the area would ultimately result in a population decline for a variety of wildlife species.

To contrast the Proposed Action and alternatives based on this issue, our effects analysis focuses on the number and type of recreation facilities that would be developed in the project area and depending on final design and location, how these recreation facilities may affect wildlife populations. Analysis will focus on:

1) impacts to Forest Service Region 10 sensitive species (Trumpeter Swan, osprey);
2) impacts to Forest Service management indicator species (brown bear, moose, mountain goat);
3) species of special interest (bald eagle, Canada Lynx, gray wolf, northern goshawk, marbled murrelet, river otter, wolverine; and
4) other species of concern (Dall's sheep, migratory birds).

Decision to be made

Based on the environmental analysis in the Final Environmental Impact Statement (FEIS) for the Whistle Stop Project, the Forest Supervisor of the Chugach National Forest will make the following decisions:

- Whether to select the proposed Whistle Stop development as proposed or modified, or as described in an alternative, including the no-action alternative;
- What mitigation measures are needed; and
- What monitoring is required.

Whistle Stop Project Overview

Turnagain Arm
Portage
Portage Hwy
Seward Highway
Luebner
Tincan Pk.
4400 ft.
Glacier Ranger District
Seward Ranger District
Spencer
Spencer Glacier
Bench Pk.
5575 ft.
Bartlett
Bartlett Glacier
Grandview
Trail Glacier
Hunter
Trail Creek
Upper Trail Lake

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500 ft. Contour Intervals
**Mining Claim with approved plan of operations
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

0 1 2 4 6 8 10 Miles

LEGEND

- Whistle Stop
- Proposed Trail
- Existing Road
- Railroad*
- District Boundary
- Project Boundary

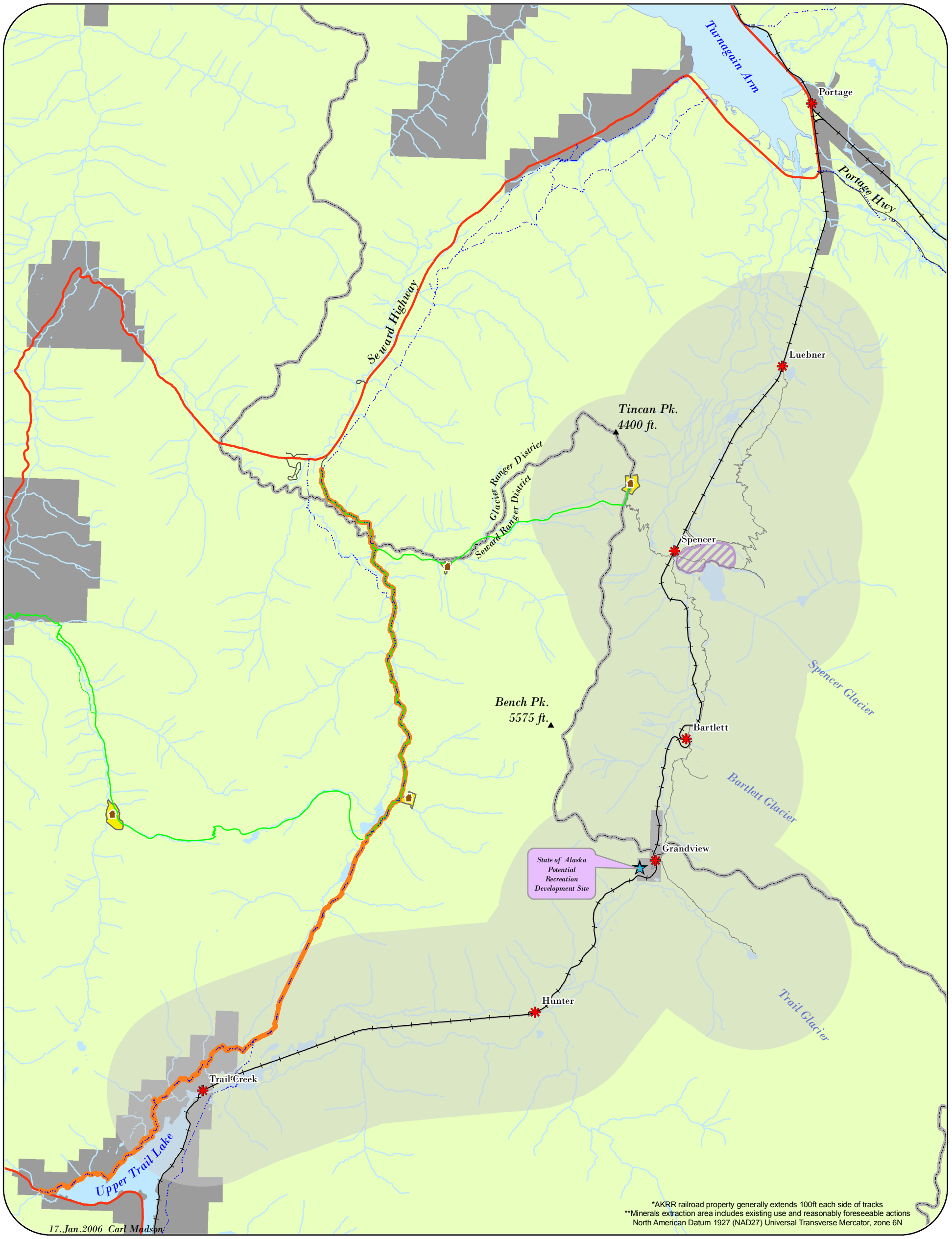
MANAGEMENT PRESCRIPTION

- Fish, Wildlife & Recreation
- Forest Restoration
- Recreation River
- Mining Claim**
- Non-National Forest
- Transportation/Utility Corridor
- Backcountry
- Scenic River
- Brown Bear Core
- Fish & Wildlife Conservation

N

For more information see:
USGS Quadrangle Seward, AK: C6, D6

Whistle Stop Project Area
Existing Conditions &
Reasonably Foreseeable Actions



For more information see:
USGS Quadrangle Seward, AK: C6, D6

Chapter 2: Alternatives

Introduction

This chapter describes how alternatives were developed and the alternatives studied in detail. Additionally, it presents mitigation requirements that would be in place under any action alternative.

Alternative Development

Based on the issues identified through scoping and Interdisciplinary Team analysis, six alternatives were developed. There are four action alternatives to the proposed action that was presented to the public during the initial public scoping period. Also, included in the range of alternatives is the "No Action" alternative as required by NEPA (40 CFR 1502.14(d)). Alternative 2 has been identified as the preferred alternative as this alternative addresses the issues of recreation settings (both social and physical) and impacts to wildlife.

Table 2-1, at the end of this section, provides a specific tabular display and summary of the recreation development for each alternative and presents a reference for the geographic location of proposed facility development.

Phase-in approach to Project Development

The Whistle Stop Project will be implemented in phases as funding becomes available. The anticipated sequence of construction is Spencer, Grandview, Luebner, Bartlett, Hunter and Trail Creek. Trails, cabins and dispersed campsites along trails will not be constructed until the associated station is developed.

The Alternatives

No Action Alternative

The No Action alternative does not propose any development in the project area. This would result in no direct change to the Whistle Stop Project area and would represent the existing condition of recreation management in the project area. The existing location for rafting put-in at Spencer Lake and take-out at Luebner Lake as well as the existing road system in the Spencer area will remain unchanged. None of the recreation facilities outlined in the Proposed Action will be constructed.

Proposed Action

Alternative Design. The Proposed Action alternative was primarily developed to address the need for additional backcountry access and increase recreation opportunities in the Kenai Peninsula Geographic Area of the Chugach National Forest.

Alternative Description. The Proposed Action would construct six Whistle Stops and associated developments. Proposed recreation facilities will make possible a variety of backcountry recreation activities and opportunities such as hiking, overnight camping and viewing wildlife. The majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Grandview, Luebner Lake, Bartlett Glacier, Hunter and Trail Creek Whistle Stops.

The following facilities will be constructed:

- 6 Whistle Stop stations;
- 31.5 miles of trail;
- 48 dispersed, hardened backcountry campsites;
- 6 public-use cabins;
- 4 wildlife/viewing platforms;
- 2 rafting put-in locations;
- 2 rafting take-out locations;
- an agency information and education yurt;
- a dispersed group use area (one 150-person capacity site);
- the motorized connector road in Spencer will continue to be used

Details identifying the locations for each of these facilities can be found on both Table 2-1 and the maps located at the end of this chapter.

Alternative 1

Alternative Design. Alternative 1 was primarily developed to address the issue of interaction between mining and recreation in the Spencer area. The design of this alternative addresses this issue by locating all proposed facilities in the Spencer area south of the Spencer Lake outlet, which would minimize the interaction between the two uses. Additionally, the issue of recreation settings (social) is addressed through a reduction in the size of the group campsite and reduction in the number of dispersed, hardened campsites in the Spencer area.

Alternative Description. Alternative 1 would construct six Whistle Stops and associated developments. The majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Grandview, Luebner Lake, Bartlett Glacier, Hunter and Trail Creek Whistle Stops.

The following facilities will be constructed:

- 6 Whistle Stop stations;
- 31.5 miles of trail;
- 42 dispersed, hardened backcountry campsites;
- 6 public-use cabins;
- 3 wildlife/viewing platforms;
- 2 rafting put-in locations;
- 2 rafting take-out locations;
- an agency information and education yurt;
- a dispersed group use area (one 25-person capacity site);
- the motorized connector road in Spencer will continue to be used

Details identifying the locations for each of these facilities can be found on both Table 2-1 and the maps located at the end of this chapter.

Alternative 2

Alternative design. Alternative 2 was primarily developed to address the issue of recreation settings (social). The design of this alternative addresses this issue and aims to minimize encounters through the ability to distribute use among five Whistle Stop stations; through a decrease in the size of the dispersed group use area; and through the decrease in hardened, dispersed sites throughout the project area. Additionally, the issue of wildlife impacts is addressed through elimination of the Hunter Whistle Stop and rafting facilities at both Hunter and Trail Creek.

Alternative description. Alternative 2 would construct five Whistle Stops and associated developments. With this alternative, there would be less construction of recreation facilities than in the Proposed Action. Similar to the Proposed Action, the majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Grandview, Luebner Lake, Bartlett Glacier, and Trail Creek Whistle Stops.

The following facilities will be constructed:

- 5 Whistle Stop stations;
- 31.5 miles of trail;
- 26 dispersed, hardened backcountry campsites;
- 6 public-use cabins;
- 3 wildlife/viewing platforms;
- 1 rafting put-in location;
- 1 rafting take-out location;
- an agency information and education yurt;
- a dispersed group use area (three 25-person sites);
- the motorized connector road in Spencer will continue to be used

Details identifying the locations for each of these facilities can be found on both Table 2-1 and the maps located at the end of this chapter.

Alternative 3

Alternative design. Alternative 3 was primarily developed to address the issue of recreation settings (physical). The design of this alternative addresses this issue through the elimination of the majority of all recreation facilities including the dispersed group use area, and all public-use cabins, wildlife/viewing platforms, and dispersed, hardened campsites along the trail system. This alternative also addresses the issue of wildlife impacts through elimination of many facilities in the Brown Bear Core Management Area, including the Hunter and Trail Creek Whistle Stops, and Trail Glacier Trail and associated public-use cabin.

Alternative description. Alternative 3 would construct four Whistle Stops and associated developments. The majority of recreation facility development and potential recreation activity is focused in the Spencer Lake area, with less facility construction and corresponding recreation activity at the Grandview, Luebner Lake, and Bartlett Glacier Whistle Stops.

The following facilities will be constructed:

- 4 Whistle Stop stations;
- 27.5 miles of trail;
- 8 dispersed, hardened backcountry campsites

Details identifying the locations for each of these facilities can be found on both Table 2-1 and the maps located at the end of this chapter.

Alternative 4

Alternative design. Alternative 4 was primarily developed to address the issue of wildlife impacts. The design and focus of this alternative addresses this issue through the elimination of all facilities located within or directly adjacent to the Brown Bear Core Management Area: the Whistle Stops at Grandview, Hunter and Trail Creek; elimination of rafting facilities at Hunter and Trail Creek; and the Trail Glacier Trail and associated cabin. Additionally, the issue of recreation settings (social) is addressed through a reduction in the capacity of the dispersed group use area.

Alternative description. Alternative 4 would construct three Whistle Stops and associated developments. Similar to the Proposed Action, the majority of recreation facility development and potential recreation activity is focused at the Spencer Glacier Whistle Stop, with less facility construction and corresponding recreation activity at the Luebner Lake and Bartlett Glacier Whistle Stops.

The following facilities will be constructed:

- 3 Whistle Stop stations;
- 22.5 miles of trail;
- 36 dispersed, hardened backcountry campsites;
- 5 public-use cabins;
- 3 wildlife/viewing platforms;
- 1 rafting put-in location;
- 1 rafting take-out location;
- an agency information and education yurt;
- a dispersed group use area (1 50-person capacity site);
- the motorized connector road in Spencer will continue to be used

Details identifying the locations for each of these facilities can be found on both Table 2-1 and the maps located at the end of this chapter.

Table 2-1. Summary Comparison of Alternatives

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Whistle Stop Stations						
Luebner Lake	No	Yes	Yes	Yes	Yes	Yes
Spencer Glacier	No	Yes	Yes	Yes	Yes	Yes
Bartlett Glacier	No	Yes	Yes	Yes	Yes	Yes
Grandview	No	Yes	Yes	Yes	Yes	No
Hunter	No	Yes	Yes	No	No	No
Trail Creek	No	Yes	Yes	Yes	No	No
Viewing Platforms						
Luebner Lake	No	2 viewing platforms	1 viewing platform	1 viewing platform	No	2 viewing platforms
Grandview Interpretive Trail	No	1 viewing platform	1 viewing platform	1 viewing platform	No	No
Spencer Lake	No	1 viewing platform	1 viewing platform	1 viewing platform	No	1 viewing platform
Rafting take out locations						
Luebner Lake	1 take-out	1 take-out	1 take-out	1 take-out	No	1 take-out
Trail Creek	No	1 take-out	1 take-out	No	No	No
Rafting put in locations						
Spencer Lake	1 put-in	1 put-in	1 put-in	1 put-in	No	1 put-in
Hunter	No	1 put-in	1 put-in	No	No	No
Information center						
Spencer Lake Info. and Educ. Yurt	No	Yes	Yes	Yes	No	Yes

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Dispersed campsites						
Spencer Glacier Trail	No	12 sites	6 sites	6 sites	0	6 sites
Glacier Discovery Trail	No	24 sites	24 sites	10 sites	0	24 sites
Whistle Stop stations	No	2 sites/station (12 total)	2 sites/station (12 total)	2 sites/station (10 total)	2 sites/station (8 total)	2 sites/station (6 total)
Cabins						
Spencer Bench	No	Yes	Yes	Yes	No	Yes
Spencer Lake cluster (3 cabins)	No	Yes	Yes	Yes	No	Yes
Bartlett Glacier	No	Yes	Yes	Yes	No	Yes
Trail Glacier	No	Yes	Yes	Yes	No	No
Dispersed group use area						
Spencer Lake	No	1 150-person site	1 25-person site	3 25-person sites	No	1 50-person site

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Trails						
Glacier Discovery Trail:						
Luebner-Spencer Segment (8 mi.)	No	Yes	Yes	Yes	Yes	Yes
Spencer-Bartlett Segment (6 mi.)	No	Yes	Yes	Yes	Yes	Yes
Bartlett-Grandview Segment (4 mi.)	No	Yes	Yes	Yes	Yes	No
Spencer Glacier Trail	No	Yes (North Shore)	Yes (South Shore)	Yes (North Shore)	Yes (North Shore)	Yes (North Shore)
Spencer non-motorized connector Trail	No	Yes	Yes	Yes	Yes	Yes
Bartlett Glacier Trail	No	Yes	Yes	Yes	Yes	Yes
Grandview Interpretive Trail	No	Yes	Yes	Yes	Yes	No
Trail Glacier Trail	No	Yes	Yes	Yes	No	No
Center Creek Pass Trail	No	Yes	Yes	Yes	Yes	Yes

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Trail Class						
Glacier Discovery Trail:						
Luebner-Spencer Segment (8 mi.)	No	Class 3	Class 3	Class 3	Class 3	Class 3
Spencer-Bartlett Segment (6 mi.)	No	Class 3	Class 3	Class 3	Class 3	Class 3
Bartlett-Grandview Segment (4 mi.)	No	Class 3	Class 3	Class 3	Class 3	No
Spencer Glacier Trail	No	Class 4	Class 4	Class 4	Class 4	Class 4
Spencer non-motorized connector Trail	No	Class 4	Class 4	Class 4	Class 4	Class 4
Bartlett Glacier Trail	No	Class 3	Class 3	Class 3	Class 3	Class 3
Grandview Interpretive Trail	No	Class 4	Class 4	Class 4	Class 4	No
Trail Glacier Trail	No	Class 3	Class 3	Class 3	No	No
Center Creek Pass Trail	No	Class 3	Class 2	Class 2	Class 2	Class 2

Facilities	No Action	Proposed action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Trail Managed Use						
Glacier Discovery Trail:						
Luebner-Spencer Segment (8 mi.)	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike
Spencer-Bartlett Segment (6 mi.)	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike
Bartlett-Grandview Segment (4 mi.)	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	No
Spencer Glacier Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	Hiker only
Spencer non-motorized connector Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	Hiker only
Bartlett Glacier Trail	No	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike	Hike, Bike
Grandview Interpretive Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	No
Trail Glacier Trail	No	Hike, Bike	Hike, Bike	Hike, Bike	No	No
Center Creek Pass Trail	No	Hiker only	Hiker only	Hiker only	Hiker only	Hiker only
Roads						
Spencer motorized connector	Yes	Yes	Yes	Yes	No	Yes

Mitigation Common to all Alternatives

The following mitigation measures will be applied to the Whistle Stop Project:

Recreation/Special Uses

1. Recreation Facilities Planning (BMP 16.1, USDA Forest Service, Alaska Region, 1996; *available at* http://fsweb.r10.fs.fed.us/directives/fsh/2509.22/) will be followed through appropriate planning, design and location of recreational facilities.

2. Trail Construction and Maintenance (BMP 16.4, USDA Forest Service, Alaska Region, 1996) will be followed to minimize soil erosion and water quality problems originating from trails and their drainage structures.

3. Outfitter/guide allocation will be monitored so that the percentage of use assigned to this user group will not exceed stated Forest Plan standards.

Hydrology

1. To protect water resources, channel morphology, and water quality bridges will be constructed with clearance over the elevation of the 100-year flood, and the use of regional Best Management Practices for trail construction and maintenance (USDA Forest Service, Alaska Region, 1996).

Soils

1. Mitigation measures to protect soil resources will be followed and can be found in the Revised Plan (2002, Revised Land and Resource Management Plan, Chugach National Forest, Alaska Region, R10-MB-480c) Standards and Guidelines for minimizing disturbance and loss in soil productivity described on page 3-22.

Wildlife

1. If a Bald Eagle or Goshawk nest is identified during construction a Forest Service Biologist will be notified and mitigation actions identified and implemented.

2. If active Trumpeter Swan nests are located during construction a Forest Service Biologist will be notified and activities associated with this project will maintain ½ mile buffer from the identified swan nests.

Design Features Common to All Alternatives

3. All Whistle Stop stations will comply with standard garbage policies/regulations designed to minimize attracting and/or habituating bears to human foods or waste. They will have a bear-proof food storage container(s) and bear-proof garbage container(s). Furthermore all backcountry access points will provide signage that emphasize bear awareness including key aspects related to proper behavior during a bear encounter and proper storage and transportation of bear attractants (e.g., food and garbage). Forest wildlife biologists and recreation specialists will develop a plan on making available individual food storage containers for use at backcountry recreation sites (i.e., dispersed, hardened campsites).

4. All trail and facility construction associated with this project will be geared towards enhancing visibility and will be incorporated into the final design layout to reduce human-bear interactions.

Additional Design Features for Facilities within the Brown Bear Core Management Area (Forest Service Plan Standards and Guidelines pp. 4-57, 4-58)

5. All access points into the Brown Bear Core Area Management Area (BBCMA) will provide signage that emphasizes bear awareness and bear safety along with a specific explanation of the BBCMA and why it is important to maintain a healthy population of brown bears on the Kenai Peninsula.

6. In all alternatives that include the Trail Glacier Trail and cabin, access may be subject to specific closures as needed to minimize bear-human interactions.

7. A Forest Service wildlife biologist will be consulted on the placement of hardened, dispersed campsites within and adjacent to ½ mile of the BBCMA. In all alternatives that include the Hunter Whistle Stop, campers within this zone will be restricted to use of these sites only.

8. Prior to authorization of rafting activity on Trail Creek an Administrative Study will be conducted to evaluate potential changes in bear behavior along the creek corridor relative to human presence. If results suggest that human activity associated with rafting use is displacing bears or there is an increase in DLP continuation of rafting will be re-evaluated.

Vegetation

Mitigation measures have been adapted from the Chugach Invasive Plant Plan (2005).

1. Prior to entering National Forest land, agency personnel, permittees, and contractors will be required to clean the equipment they intend to use. Similarly, when working on trails, the cleaning of tools and equipment between work sites along the trail will help prevent transport of invasive plant seed and vegetative reproductive structures further along the trail.

Design Features Common to All Alternatives

2. For all projects involving revegetation, natural revegetation will be used where seed source and site conditions are favorable, and native plant species will be used in revegetation/restoration projects when natural revegetation conditions are not favorable (Forest Plan page 3-25). Preference will be given to plant materials from the local environment of the project area to maximize adaptation to that environment and maintain local genetic composition.

3. All hay, straw, or mulch used on for the project will be free of invasive plant species. This includes materials used for mulching, erosion control, rehabilitation, or other uses, by agency personnel, permittees, or contractors. Where applicable, and if invasive plant free material is available, include this specification as a contract or permit requirement.

4. In areas where future ground disturbing activities are scheduled to occur within invasive plant infestations, appropriate invasive plant treatment applications will be conducted prior to project implementation to reduce future spread and establishment. Ground disturbing activities will be timed to minimize the potential of providing favorable seed beds when invasive plant species have developed mature seeds.

5. When building trails, a narrower tread and the maintenance of native grasses and forbs in close proximity to the tread will help prevent invasive plant establishment. When drainage work along trails is needed, a light touch will be used to maintain the root structure of the native plants present. When brushing the trail edge, vegetation will be left at least 10 inches tall which will usually allow more native species to persist, prosper, and perhaps out-compete invasive species. In addition, we will maintain dead organic matter on the surface, rather than remove it, since such mulch can reduce the establishment and growth of invasive plants.

The following are mitigation measures related to sensitive species.

1. Avoid constructing trails or other facilities directly on occupied habitat.

2. Add interpretive signs to alert visitors of the presence of rare plants. Place emphasis on staying on developed trails to reduce impacts from cross-country travel.

3. Identification of the exact location of the cabin on the Spencer overlook trail should be coordinated with the Forest or District Ecologist.

4. Monitor population for potential impacts after implementation of the project. Monitoring should be conducted periodically to see if increased human activity is impacting the population.

5. If any previously undiscovered sensitive plants are encountered at any time prior to or during implementation of this project, protect the population and avoid any disturbance in the area containing the population (and similar habitats in that vicinity). The district or forest botanist/ecologist should be notified immediately to evaluate the population and recommend avoidance or mitigation measures.

Fisheries

1. Best Management Practices as described in the Soil and Water Conservation Handbook - FSH 2509.22 (USDA Forest Service, Alaska Region,1996) and the Aquatic Habitat Management Handbook - FSH 2090.21 (USDA Forest Service, Alaska Region, 2001) and consultation with hydrologists and aquatic biologists will occur to minimize the impacts of trail building and stream crossing on the fisheries resources.

2. Any in-stream work will be accomplished during the window of opportunity established in the Memorandum of Understanding between the State of Alaska and the Forest Service. Currently, instream work is allowed between May 15 and July 15 of each year.

3. If a trail or viewing platform crosses a class I or class II stream or wetland, a bridge or elevated boardwalk will be used to better maintain natural stream processes and avoid fish passage problems that can be commonly associated with culverts.

4. Damage along riparian areas as a result of trail building, human use, and excessive trampling will be monitored and corrected in a timely and effective manner.

5. Hydrologists, biologists, and engineers will work closely to develop effective stream crossings near Luebner Lake and its tributaries that avoid impacts to the fisheries resource and aquatic habitat and will design monitoring plans that will assure continued unidirectional movement.

Heritage

1. A heritage resource specialist will monitor all project activities occurring within 100 feet of a known cultural site.

2. If any previously undiscovered heritage artifacts or sites are located during project implementation, the artifacts and sites are not to be disturbed. Work will stop and the project archeologist immediately notified. A heritage specialist will evaluate the discovery, consult with appropriate parties and recommend avoidance or mitigation measures in accordance with the Region 10 Programmatic Agreement.

3. Post monitoring of project construction activities and mitigation measures will occur in accordance with the Region 10 Programmatic Agreement.

4. Any site-specific mitigation will be designed to educate the public and protect sites where possible, and will adhere to the Region 10 Programmatic Agreement and Section 106 standards for mitigation.

Whistle Stop
Proposed Action
Luebner to Spencer, North Half

CHUGACH National Forest

FOREST SERVICE US DEPARTMENT OF AGRICULTURE

Spencer

Motorized Connector

Group Camping Max. Capacity 150 People

-Information/Educ. Yurt
-Viewing Platform
-Raft Put In

12 Dispersed Camping Sites

Spencer Glacier Trail

Spencer Connector

Spencer Lake

Inset 1

Luebner

Luebner Lake

Glacier Discovery Trail

Seward Ranger Distrct

Glacier Ranger Dist

Center Creek Pass Trail

Spencer

Motorized Connector

Spencer Connector

Spencer Glacier Trail

Glacier Discovery Trail

Spencer Lake

See Inset 1

Spencer Glacier

17.Jan.2006 Carl Madson

Miles

0 0.5 1 2 3

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Existing Road
- Proposed Bridge
- Railroad*
- Proposed Cabin Site
- District Boundary
- Proposed Developed Recreation Complex Boundary

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

N

For more information see:
USGS Quadrangle Seward, AK: C6, D6

Whistle Stop
Proposed Action
Bartlett to Grandview, South Half

Bartlett

Bartlett Glacier Trail

Glacier Discovery Trail

Bartlett Glacier

Grandview

Grandview Interpretive Loop

Glacier Ranger District

Seward Ranger District

Trail Glacier Trail

17. Jan. 2006 Carl Madson

0 0.25 0.5 1 1.5 Miles

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Non National Forest
- Proposed Bridge
- Railroad*
- District Boundary
- Proposed Cabin Site

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

N

For more information see:
USGS Quadrangle Seward, AK: C6

Whistle Stop
Alternative 1
Luebner to Spencer, North Half

Spencer
Group Camping One 25 Person Site
-Information/Educ. Yurt
-Viewing Platform
-Raft Put In
Spencer Lake
6 Dispersed Camping Sites
Spencer Glacier Trail
Inset 1
Luebner
Luebner Lake
Glacier Discovery Trail
Seward Ranger District
Glacier Ranger Dist
Center Creek Pass Trail
Spencer
Motorized Connector
Spencer Connector
Glacier Discovery Trail
Spencer Lake
Spencer Glacier Trail
See Inset 1
Spencer Glacier
17.Jan.2006 Carl Madson

Miles
0 0.5 1 2 3

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Existing Road
- Proposed Bridge
- Railroad*
- Proposed Cabin Site
- District Boundary
- Proposed Developed Recreation Complex Boundary

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

ALASKA

N

For more information see:
USGS Quadrangle Seward, AK: C6, D6

Whistle Stop
Alternative 1
Bartlett to Grandview, South Half

Bartlett

Bartlett Glacier Trail

Glacier Discovery Trail

Bartlett Glacier

Grandview

Grandview Interpretive Loop

Glacier Ranger District

Seward Ranger District

Trail Glacier Trail

17. Jan. 2006 Carl Madson

0 0.25 0.5 1 1.5 Miles

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Non National Forest
- Proposed Bridge
- Railroad*
- District Boundary
- Proposed Cabin Site

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

ALASKA

N

For more information see:
USGS Quadrangle Seward, AK: C6

Whistle Stop
Alternative 2
Luebner to Spencer, North Half

Spencer
Motorized Connector
Group Camping Total Capacity 75 OR Three 25 person sites
Spencer Connector
-Information/Educ. Yurt
-Viewing Platform
-Raft Put In
6 Dispersed Camping Sites
Spencer Glacier Trail
Spencer Lake
Luebner
Luebner Lake
Inset 1
Seward Ranger Distrct
Glacier Ranger Dist
Glacier Discovery Trail
Center Creek Pass Trail
Spencer
Motorized Connector
Spencer Connector
Glacier Discovery Trail
Spencer Lake
Spencer Glacier Trail
See Inset 1
Spencer Glacier
17.Jan.2006 Carl Madson

Miles
0 0.5 1 2 3

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Existing Road
- Proposed Bridge
- Railroad*
- Proposed Cabin Site
- District Boundary
- Proposed Developed Recreation Complex Boundary

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

N

For more information see:
USGS Quadrangle Seward, AK: C6, D6

Whistle Stop
Alternative 2
Bartlett to Grandview, South Half

Bartlett

Bartlett Glacier Trail

Glacier Discovery Trail

Bartlett Glacier

Grandview

Grandview Interpretive Loop

Glacier Ranger District

Seward Ranger District

Trail Glacier Trail

17.Jan.2006 Carl Madson

Miles

0 0.25 0.5 1 1.5

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Non National Forest
- Proposed Bridge
- Railroad*
- District Boundary
- Proposed Cabin Site

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

ALASKA

N

For more information see:
USGS Quadrangle Seward, AK: C6

Whistle Stop
Alternative 3
Luebner to Spencer, North Half

Spencer
Motorized Connector
Spencer Connector
Spencer Glacier Trail
Spencer Lake
Inset 1
Luebner
Luebner Lake
Glacier Discovery Trail
Seward Ranger Distrct
Glacier Ranger Dist
Center Creek Pass Trail
Spencer
Motorized Connector
Spencer Connector
Glacier Discovery Trail
Spencer Lake
Spencer Glacier Trail
See Inset 1
Spencer Glacier
17.Jan.2006 Carl Madson

0 0.5 1 2 3 Miles

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Existing Road
- Proposed Bridge
- Railroad*
- District Boundary
- Proposed Cabin Site

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

N

For more information see:
USGS Quadrangle Seward, AK: C6, D6

Whistle Stop
Alternative 3
Bartlett to Grandview, South Half

Bartlett

Bartlett Glacier Trail

Glacier Discovery Trail

Bartlett Glacier

Grandview

Grandview Interpretive Loop

Glacier Ranger District

Seward Ranger District

17.Jan.2006 Carl Madson

Miles

0 0.25 0.5 1 1.5

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Non National Forest
- Proposed Bridge
- Railroad*
- District Boundary
- Proposed Cabin Site

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

ALASKA

N

For more information see:
USGS Quadrangle Seward, AK: C6

Whistle Stop
Alternative 4
Luebner to Spencer, North Half

CHUGACH National Forest

FOREST SERVICE US DEPARTMENT OF AGRICULTURE

Spencer

Motorized Connector

Group Camping One 50 Person Site

-Information/Educ. Yurt
-Viewing Platform
-Raft Put In

6 Dispersed Camping Sites

Spencer Glacier Trail

Spencer Connector

Spencer Lake

Inset 1

Luebner

Luebner Lake

Glacier Discovery Trail

Seward Ranger Distrct

Glacier Ranger Dist

Center Creek Pass Trail

Spencer

Motorized Connector

Spencer Connector

Spencer Glacier Trail

Glacier Discovery Trail

Spencer Lake

See Inset 1

Spencer Glacier

17. Jan. 2006 Carl Madson

0 0.5 1 2 3 Miles

LEGEND

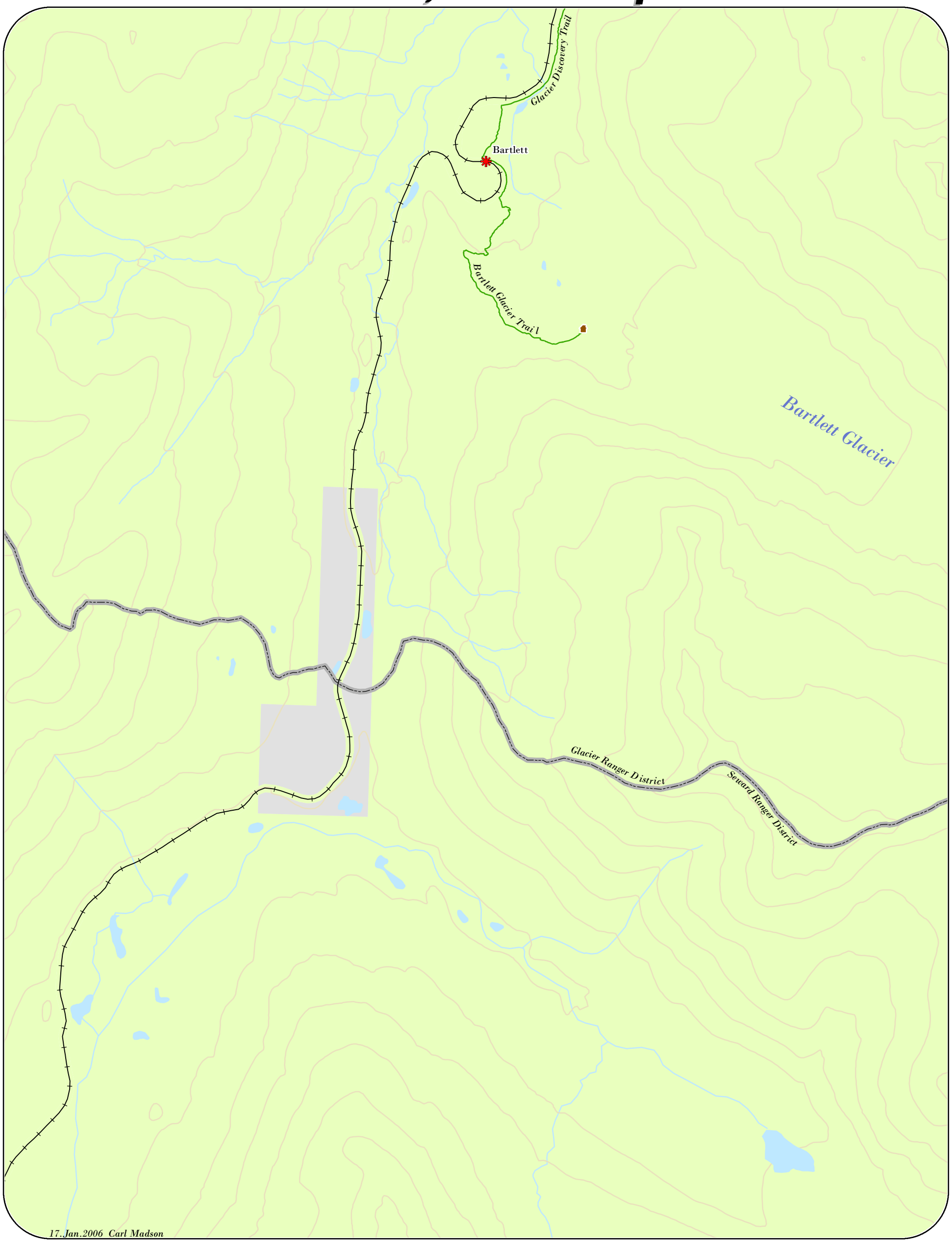
- Whistle Stop
- Viewing Platform
- Proposed Trail
- Existing Road
- Proposed Bridge
- Railroad*
- Proposed Cabin Site
- District Boundary
- Proposed Developed Recreation Complex Boundary

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

N

For more information see:
USGS Quadrangle Seward, AK: C6, D6

Whistle Stop
Alternative 4
Bartlett to Grandview, South Half



Miles
0 0.25 0.5 1 1.5

LEGEND

- Whistle Stop
- Viewing Platform
- Proposed Trail
- Non National Forest
- Proposed Bridge
- Railroad*
- District Boundary
- Proposed Cabin Site

500 ft. Contour Intervals
*AKRR railroad property generally extends 100ft each side of tracks
North American Datum 1927 (NAD27) Universal Transverse Mercator, zone 6N

N

For more information see:
USGS Quadrangle Seward, AK: C6

Chapter 3: Affected Environment and Environmental Consequences

Introduction

This chapter describes the current environment that would be affected by the alternatives, followed by the environmental effects of each alternative. The affected environment section lays the foundation for the environmental analysis relevant to the various alternatives that are proposed in this document. The environmental consequences relate mainly to the four issues associated with this analysis that were identified through public and agency scoping as described in Chapter 1. Issues within the scope of the project decision include:

- Alteration of the existing recreation setting with the development of recreation infrastructure.
- Change to the existing social experience in the backcountry environment.
- Potential conflicts between existing and future mining activities and predicted recreation use in the project area.
- Potential adverse impacts to wildlife species from recreation development in the project area and the resulting increase in visitor use.

Other Existing or Reasonably Foreseeable Projects

Any action that results in more people in the backcountry or more disturbances of natural habitats in or near the project area has the potential to cause cumulative impacts to recreation settings and wildlife. The following existing or potential future projects may have environmental impacts in the project area:

Iditarod National Historic Trail (INHT)

An Environmental Assessment has been completed for the preservation, development and management of the INHT between Seward and Girdwood, Alaska. Through field survey and reconnaissance, the Forest Service has identified potential locations for the establishment of a continuous trail, part of which will be located in proximity to the proposed Whistle Stop at Trail Creek. The section of trail that would be constructed near the Trail Creek Whistle Stop is scheduled for development in the next 5-10 years and has the potential to bring recreationists into other portions of the Whistle Stop Project area through the Trail Creek Whistle Stop site.

Hut-to-Hut proposal

The Alaska Mountain and Wilderness Huts Association (AMWHA) has submitted a proposal to develop a system of backcountry huts that would be open to the general public and accessed through a trail system, a portion of which presently exists. This project proposal is listed on the Schedule of Proposed Actions (SOPA) and is currently being reviewed through an Environmental Impact Statement (EIS) conducted by the Forest Service. One proposed Hut is located on the top of Center Creek Pass, and may be connected to the Spencer Glacier Whistle Stop site via the Center Creek Pass Trail, which is analyzed in this EIS.

Development of a trail to access this cabin from both the west and east has a potential to increase day hiking opportunities and overnight trips into the backcountry thereby increasing recreational use of the Whistle Stop Project area, particularly around Spencer Glacier.

Commercial recreation leasing on State Land at Grandview

In their Kenai Area Plan, the State of Alaska Department of Natural Resources (DNR) identifies the potential for commercial recreation leasing on some amount of the 320 acres of State lands in the Grandview area. It is mentioned in the plan that the "DNR is not proposing to develop the unit at this time, nor has it received an application for this type of use (State of Alaska DNR Kenai Area Plan, 3-37)", and "at Grandview, state lands will be managed to provide opportunities for train passengers both in summer and winter (Kenai Area Plan, 3-30)." It is possible that with development of Whistle Stop service at Grandview, there could be increased interest in commercial recreation development in the area, therefore introducing an enlarged presence around Grandview as well as the general Whistle Stop Project location.

Outfitter/Guide Use

Currently there is limited outfitter/guide use throughout the Whistle Stop Project area. Existing permits cover a variety of recreational pursuits (rafting, canoeing, hiking and fishing), yet the majority of outfitting use is through one permittee who conducts rafting and canoeing trips on Spencer Lake and down the Placer River (see Appendix C for outfitter/guide use numbers). With increased visitation to the area, there is a high potential for an increased need and opportunity for a variety of outfitting and guiding ventures, including rafting, hiking, mountain biking and mountain climbing. There is additional outfitting and guiding that occurs in the winter months, but the current proposed configuration of Whistle Stop service takes place between May and September.

Johnson Pass Trail

The Johnson Pass Trail is a popular 23-mile point-to-point backcountry opportunity for Chugach National Forest visitors. It is popular for hikers, backpackers, and mountain bikers in the summer months. Development of trails in the Center Creek area (through the Hut-to-Hut proposal) and the Spencer Lake area (through the Whistle Stop proposal) will encourage users to utilize the Johnson Pass Trail to access the Whistle Stop area, which has the potential to increase the number of day and overnight users in the project area.

Development of Mineral materials at Spencer Glacier

Approximately 400 acres of placer mining claims are located in the Spencer Lake area, located at the Spencer Lake outlet north of the Placer River. Minimal activity has taken place with these claims over the past several years. A recently developed plan of operations allows motorized use to occur in the area in conjunction with development of these claims.

Additionally, just to the north-west of Spencer Lake, approximately 245 acres have been managed as a mineral materials site since 1978. Although the site has not been in operation for several years, there is the potential for future mining of resources; multiple responses were received to a solicitation of interest issued by the Forest Service for potential removal of rock, sand and gravel. The environmental analysis for this project will be initiated by the Chugach National Forest in 2006.

Recreation/Special Uses

Affected Environment

Summer use

Due to the lack of public roads and trails, the Placer River Valley has historically been relatively inaccessible to the majority of Chugach National Forest visitors. Therefore, in general, recreation use in this drainage is much lower than road-accessed portions of the Chugach National Forest and overall summer use is relatively low (less than one person/day) because of strenuous or costly access to this area.

The main avenue for transportation through this corridor is via the Alaska Railroad tracks. The ARRC conducts daily passenger trips throughout the area (Table 3-1) during summer months only. Yet without a developed infrastructure in the area (i.e., a Whistle Stop station), the Railroad will not allow the public to disembark the train or walk along the tracks to access the Chugach National Forest backcountry. The exception to this is an agreement that the ARRC has with an outfitter/guide, where only clients of the outfitter/guide are allowed to exit the train at Spencer Lake, and raft Spencer Lake and the Placer River.

Independent of railroad access, during the summer recreationists have the ability to access the Placer River area by boat; by airplane or helicopter; and by foot through cross-country travel. Non-guided boat use on the Placer River has never been quantified, but anecdotal information indicates that use is low (less than 5 boats/day). Use is even rarer until mid-August when fishing opportunities increase and in September when duck hunting begins (personal communication, S. Stash). Outfitter/guide boat use on the Placer River occurs and is detailed in Appendix C. Fewer boats travel up the Placer towards Spencer Lake, possibly because fish populations are higher on the lower Placer River. Access by air and by foot is occurring, however, these modes of access have not been quantified in this area. Due to a lack of developed infrastructure (e.g. trails), and the remote nature of the area, foot traffic is believed to be extremely low (with encounters less than 1-2 parties/day) throughout the area, consisting of hunters, anglers, and rugged backcountry adventurers. Summer recreation use in the Trail Creek Valley (Grandview south to Trail Creek) follows similar patterns described above

because of similar barriers to access, with use concentrated on waterways to facilitate activities such as fishing and hunting.

There are five outfitters and guides who operate in the project area during the summer, providing services including rafting, canoeing, hiking, fishing, flightseeing, and motorized boat-tours. Appendix C details the use levels of each permittee.

Winter use

The ARRC only envisions summer support to the Whistle Stop Project area, however there is the possibility for winter recreation use to increase due to potential future recreation infrastructure (e.g., public-use cabins), which in turn may ultimately result in transportation of passengers during the winter months. Therefore, it is important to assess the status of winter use in the project area.

As with many areas of Alaska, recreation use in the Whistle Stop Project area increases in the winter due to a firm snowpack and frozen waterways. There is evidence of both snowmachine and backcountry ski use throughout the entire Placer River drainage from November – April (except for the Skookum Glacier Drainage, which closes to motorized use April 1) as well as the Trail Creek drainage (see Appendix D for figures). Both independent and guided snowmachine use has been documented not only in the Placer Valley, but also throughout the numerous drainages and glaciers (such as Spencer Glacier) in the valley (See Appendix C for outfitter/guide numbers). Motorized snowmachine use is dictated though, by snowpack. If the snow depth is not sufficient to protect area resources, the entire Placer River Valley is closed to snowmachine use until adequate snowfall develops.

Helicopter assisted skiing also takes place in various locations throughout the Placer River Valley, generally from January to April. Heli-skiing use data in the Whistle Stop project area can be found in Appendix C. Additionally, the Alaska Railroad runs one winter trip into the Grandview area each season. This trip takes place in the early spring and transports non-motorized backcountry travelers for a one-day trip into the Grandview area.

There are six outfitters and guides who operate in the project area during the winter, providing services including snowmobile tours, skiing, heli-skiing, and flightseeing. Appendix C details the use levels of each permittee.

Existing Alaska Railroad passenger operations

Currently the Alaska Railroad conducts daily business, carrying both freight and passengers, throughout the project area multiple times per day. In terms of passenger business, up to three trains per day visit the project area during the summer months: The Coastal Classic and Glacier Discovery both operate daily from mid-May to mid-September and a train chartered by cruise ship companies periodically traverses the project area. At this time, due to Alaska Railroad

regulations, the only visitors exiting the train must utilize the services of a rafting outfitter/guide at Spencer Lake (on the Glacier Discovery Service). Totaling an average of less than 50 people a day, visitors are shuttled to Spencer Lake via bus and then float down the Placer River (see Appendix C). Table 3-1 exhibits both the currently existing passenger train service in the project area for both summer and winter, as well as the proposed future Whistle Stop train service.

Table 3-1. Existing and proposed Alaska Railroad Passenger service in the project area.

Service	Name of trip	Train Route	Capacity	Round trips/day
Existing	Coastal Classic	Anchorage-Portage-Seward	205	1 (summer)
Existing	Glacier Discovery	Portage-Spencer-Grandview	205	1 (summer)
Existing	Grandview (Chartered cruise ship trips)	Varies	205	< 1 (summer)
Existing	Ski Train	Portage-Spencer-Grandview	205	1 trip/year (winter)
Proposed	Whistle Stop service	Portage-Grandview-Trail Creek	170	4 (max.) (summer)

Forest Plan Management Direction

The Whistle Stop Project area consists of three Management Area Prescriptions: Backcountry, Brown Bear Core Area, and Developed Recreation Complexes.

Backcountry and Brown Bear Core Management Areas

The majority of the project area is located in the Backcountry Management Area (59,640 acres), followed by the Brown Bear Core Management Area (13,913 acres). Under the Recreation Opportunity Spectrum (ROS) Classification System, these management areas are under the Semi-Primitive ROS class, described below (Forest Plan, 3-38 and 3-39):

- On trail solitude is expected to be high to moderate, with the level of on trail encounters moderate (< 15 parties/day)
- Off trail solitude is expected to be very high, with the level of off trail encounters low (< 6 parties/day)
- Maximum party size is 24
- The degree of risk and challenge is high to moderate
- Surface access is non-motorized, with trails managed up to a Class 3 level and with the route and tread maintained regularly
- Air/water access is both motorized and non-motorized

- Facilities will be constructed to a Development Scale 2 (see Appendix G for details)

Developed Recreation Complexes Management Area
The Spencer Glacier area is located in the Developed Recreation Complexes Management Area, with boundaries ranging from 0 to 187 acres in the different alternatives. Under the Recreation Opportunity Spectrum (ROS) Classification System, this management area is under the Roaded Modified ROS class, described below (Forest Plan, 3-38 and 3-39):

- On trail solitude is expected to be low, with the level of on trail encounters high (> 15 parties/day)
- Off trail solitude is expected to be moderate to low, with the level of off trail encounters low (< 6 parties/day)
- No maximum party size is established
- The degree of risk and challenge is moderate to low
- Surface access is both motorized and non-motorized, with trails managed to a Class 3 or 4 level and with the route and tread maintained on an annual basis or as needed to minimize resource impacts
- Air/water access is both motorized and non-motorized
- Facilities will be constructed to a Development Scale 3 (see Appendix G for details), and designed with a rustic style, including both trails and directional signage

Environmental Consequences of each Alternative

Please reference Chapter 1 for the Issue Statements and related measurements/indicators used to determine the environmental consequences of each alternative in this document.

No Action

Recreation settings (physical)
Direct, indirect and cumulative effects – Under the No Action alternative, there will be no Whistle Stop related facility development in the Whistle Stop Project area. Therefore, access into the project area will be limited to existing waterways, difficult cross-country travel, air travel, and limited Alaska Railroad Train service. Outfitters and guides will continue to operate in the area,

conducting primarily water-based activities such as canoeing, rafting, fishing and motorized boat tours (see Appendix C for use figures).

Recreation settings (social)
Direct and indirect effects – Under the No Action alternative, social encounters will remain at a minimal level (1-2 parties/day or less) and users will have a high degree of solitude. The exception would be along the major waterways (Placer River and Trail Creek) where access is concentrated and the potential to encounter other groups is greater (2-5 parties/day or less). Recreation use will be highly dispersed due to the lack of any developed recreation infrastructure. With this alternative, existing patterns of use would remain the same with changes occurring due to future changes in recreational use patterns. Waterways will continue to be the primary locations for social encounters (Placer River and Trail Creek) and, due to the nature of rivers and lakes, use will be relatively concentrated.

The only organized recreation activity in the area today is the guided rafting along the Placer River between Spencer Lake and Luebner Lake. Access is controlled by the railroad and only people going on this trip can get off the train. There may be approximately 45 people, floating the River in groups of 6-8. With the relative proximity of the rafts (generally within sight and sound of each other), this is typically considered as 1 group. This activity is expected to continue at this level in the No Action alternative. Outfitters and guides will continue to operate, conducting primarily water-based activities such as canoeing, rafting, fishing and motorized boat tours. The majority of the outfitting/guiding activity occurs in the Spencer Lake/Placer River drainage, leaving the majority of the project area currently unused by outfitters/guides.

Cumulative effects – The No Action alternative will have no cumulative effects on the recreation setting.

Effects common to all Action Alternatives

Recreation settings (physical)
Direct and indirect effects – For all action Alternatives, all public access, once off the train, will be by foot or bicycle. Only one service road is proposed at Spencer Glacier (in all alternatives except Alternative 3) to facilitate operations of the outfitted and guided rafting. Proposed structures (cabins, information signs, etc.) are very limited, dispersed and will be located and designed to blend into the landscape. Little clearing and removal of vegetation or land form modifications are proposed. Each cabin is estimated to affect ½ acre and dispersed campsites approximately ¼ acre each. Trails proposed in all alternatives are located to facilitate access to the major attractions at each site or provide an interconnecting route between attractions. The natural appearing landscape and generally wild character of the existing physical setting will be maintained and is consistent with semi-primitive recreation opportunity spectrum setting. See

Tables 3-2 and 3-3 below for a comparison of recreation facilities and their impact to the recreation setting (physical), by Alternative.

The natural and wild character will be most affected in the Spencer area, where a higher density of development is proposed. With trails constructed at a higher standard and facilities such as an agency information and education yurt available, there will be some change in the recreation setting. The footprint of these changes will be small and the surrounding landscape will be essentially untouched resulting in a recreation setting that, while changed in the immediate area, will be natural and wild in character overall. The agency information and education yurt is estimated to affect approximately ½ acre, the viewing platform approximately ¼ acre, the group use area between 2-5 acres, and the cabin cluster about 1½ acres. For people with lesser outdoor skills, disabilities, or simply reluctance to venture into the wild, the Spencer Glacier site will provide a recreation setting that will immerse people into the middle of a wild and natural landscape in a safe and controlled manner. This level of development, while changing the current physical setting, is consistent with the management direction for this local area (i.e. Developed Recreation Complexes).

Cumulative effects – With development of a Whistle Stop at Grandview (except in Alternative 4), there may be increased interest in commercial recreation leasing in the Grandview area on State DNR lands. Development on State lands will ideally use structural design and location to minimize any reduction in the natural landscape character. Development of a Whistle Stop at Trail Creek (except in Alternatives 3 and 4) may increase the potential that Iditarod National Historic Trail construction will focus on the section of trail connecting to the Trail Creek Whistle Stop, potentially introducing more visitors into the Whistle Stop Project area.

Table 3-2. Concentrated Recreation-use Facilities and Acres Impacted, by Alternative

Facilities[1] / Alternatives	Whistle Stops[2]	Developed Node Trails[3]	Info. Yurt	Group Use area	Viewing Platform	Raft Put-in	Raft Take-out	Total Acres Impacted[4]
No Action	0	0	0	0	0	0	0	**0**
Proposed Action	6	4.5	1	1	4	2	2	**18.0**
Alternative 1	6	4.5	1	1	3	2	2	**17.75**
Alternative 2	5	4.5	0	1	3	1	1	**15.75**
Alternative 3	4	4.5	0	0	0	0	0	**8.5**
Alternative 4	3	3.5	1	1	3	1	1	**11.25**

Table 3-3. Dispersed Facilities and Acres Impacted, by Alternative

Facilities / Alternatives	Dispersed sites	Cabins	Trail miles[5]	Total acres Impacted[6]
No Action	0	0	0	**0**
Proposed Action	48	6	27	**42**
Alternative 1	42	6	27	**40.5**
Alternative 2	28	6	27	**37**
Alternative 3	8	0	23	**25**
Alternative 4	30	5	19	**29**

[1] Facilities are listed by the *number* of facilities in each alternative and are then multiplied by the acreage impacted per facility

[2] Whistle Stops are located on Alaska Railroad land, yet acres impacted are included in total by alternative.

[3] This includes trails that are integrally linked to Whistle Stop development including: Spencer Glacier Trail (1.5 miles), Spencer connector trail (1 mile), Bartlett Glacier Trail (1 mile) and Grandview Interpretive Trail (1 mile).

[4] Approximate impact of each facility is as follows: Trails – 1 acre/mile; information yurt – ½ acre; group use area (2-5 acres); viewing platform – ¼ acre; raft put-in and take-out – ¼ acre/each.

[5] This includes trails that are considered backcountry trails, as they are not directly linked to Whistle Stop development. These trails include: Glacier Discovery Trail (18 miles), Trail Glacier Trail (4 miles) and the Center Creek Pass Trail (5 miles).

[6] Approximate impact of each facility is as follows: Dispersed sites – ¼ acre/each; cabins – ½ acre each; trails – 1 acre/mile.

Recreation settings (social)

Direct effects – This project will provide an easy access route to up to six places along the railroad corridor. Trails will provide opportunities for people to disperse into the backcountry. The six stops will provide some dispersion of people, but at the Whistle Stops, people will be crowded into a small area. As visitors begin dispersing on trails or cross-country, densities would decrease and encounters should be reduced (1-2 parties/day cross-country). Along trails, hikers should expect to run into some groups (2-4 parties/day on trails), not unlike other hiking opportunities on Forest Service trails in South-central Alaska (Resurrection Pass, Johnson Pass or Lost Lake Trails, for example). At major destinations, such as at the end of the Bartlett Glacier Trail, users can expect to run into additional groups (4-6 parties/day), therefore, the degree of solitude as compared to existing conditions will be reduced. Dispersed campsites and cabins will separate backcountry parties so they have a feeling of solitude, but contact from others is to be expected. Even with the additional backcountry users, the changes in the social setting will be consistent with a semi-primitive recreation opportunity spectrum setting.

In all alternatives, Spencer Glacier is expected to be the major attraction. Facilities proposed will accommodate large numbers of people and will be designed to accommodate all abilities. In the immediate area of Spencer Glacier users should expect to consistently encounter a number of other visitors (more than 15 parties/day), both at recreation sites and on trails. There will be a highly reduced feeling of solitude within the vicinity of Spencer Lake. With more highly developed trails, a greater diversity of recreation facilities and a readily available opportunity to engage in outfitted and guided trips, there is a likelihood of encountering both a higher number of users and larger size groups. This level of social encounters will be a significant change from the current social setting. However, this change is consistent with the long-term management direction for this local area.

Social encounters will be directly dependent on both the schedule of operation and the type of operational equipment used by the Alaska Railroad. With the current schedule and passenger car equipment, up to 205 people can gain access to the project area each day (via Railroad transportation). When the Railroad acquires self-propelled rail cars (DMUs), service will be expanded and up to 672 people/day (four round trips with 168 people per trip) can be transported into the project area, if the trains operate at maximum capacity. Furthermore, the project would be developed in phases, and as additional locations were made available for public access, it is assumed that users will disperse to different locations, therefore reducing the number of parties/day one may encounter in the backcountry, and increasing the level of solitude. Additionally, if self-propelled rail cars are not acquired, the Bartlett Glacier Stop will not be developed as current passenger cars do not have the operational ability to stop at this location. Tables 3-4 and 3-5 provide tabular information

detailing the expected dispersal of users throughout the Whistle Stop project area, and the effect on the recreation setting (social), by Alternative.

Indirect effects – While the Whistle Stop Project is not proposing any winter service, there is still the potential for a slight increase in winter use due to the construction of facilities such as the public-use cabins, particularly the cabin cluster in the Spencer Lake area and the cabin at Bartlett Glacier. The availability of these cabins may encourage more users to both access the area and engage in a longer stay. The impact to the social experience will be minimal with this potential introduction of additional winter use in the area.

Cumulative effects – Cumulative effects on recreationists can be expected with development of the potential mining activity at Spencer. This resource use has the potential to create visual and noise impacts for people accessing the mid- and upper-Placer River Valley areas. Whistle Stop development in Grandview (except in Alternative 4) has the potential to encourage State of Alaska development of commercial recreation leasing in the area, thereby increasing the potential number of encounters in the area. Finally, recreation use may overlap between the Iditarod National Historic Trail (INHT) and the Whistle Stop project area due to INHT development and its proximity to the Trail Creek Whistle Stop station (except in Alternatives 3 and 4).

Table 3-4. Maximum Level of Encounters Per Day by Alternative at Concentrated Recreation-use Facilities[7]

	Day trip visitors[8]/ groups[9]	Whistle Stop and number of groups encountered per day[10]					
Alternative		Spencer	Grandview	Bartlett	Luebner	Trail Creek	Hunter
No Action	0	0	0	0	0	0	0
Proposed Action	538/135	79	14	14	14	0	14
Alternative 1	538/135	79	14	14	14	0	14
Alternative 2	538/135	93	14	14	14	0	---
Alternative 3	538/135	93	14	14	14	---	---
Alternative 4	538/135	93	---	21	21	---	---

[7] Concentrated Recreation-use facilities include viewing platforms, trail systems associated with Whistle Stops (i.e., Spencer Glacier Trail), and group camping facilities.
[8] Day trip visitors are expected to account for 80% of Whistle Stop visitors according to the Whistle Stop Project Business Plan. This accounts for 538 of the maximum capacity of 672 visitors with DMU service running 4 trips per day.
[9] Assuming an average group size of four.
[10] Percentage of expected use at each Whistle Stop location is determined by both availability of proposed facilities and proximity of natural features.

Table 3-5. Maximum Level of Encounters by Alternative at Dispersed Facilities[11]

Alternative	Extended Trip visitors[12]/ groups[13]	Whistle Stop area and number of groups encountered per day[14]					
		Spencer	Grandview	Bartlett	Luebner	Trail Creek	Hunter
No Action	0	0	0	0	0	0	0
Proposed Action	134/34	26	2	2	2	1	1
Alternative 1	134/34	26	2	2	2	1	1
Alternative 2	134/34	26	3	2	2	1	---
Alternative 3	134/34	25	3	3	3	---	---
Alternative 4	134/34	26	---	4	4	---	---

Wildlife

Affected Environment

The Chugach National Forest provides habitat for an estimated 232 vertebrate species including 51 mammals, 179 birds, and 2 amphibians. These species contribute to the health of the Forest and provide Forest users with a full range of opportunities that include consumptive and non-consumptive activities (USDA Forest Service, 2002). Many of these species are found in the Whistle Stop project area. Of them, this EIS discusses 1) Federally listed threatened and endangered species, 2) Forest Service Region 10 sensitive species, 3) Forest Service management indicator species, 4) Species of special interest, 5) Other species of concern that may be affected by this proposal.

Threatened and Endangered Species

No threatened or endangered species occur in the project area.

[11] Dispersed facilities include cabins, campsites and extended trail system.
[12] Extended trip visitors are expected to account for 20% of Whistle Stop visitors according to the Whistle Stop Project Business Plan. This accounts for 134 of the maximum capacity of 672 visitors with DMU service running 4 trips per day.
[13] Assuming an average group size of four.
[14] Percentage of expected use at each Whistle Stop location is determined by both availability of proposed facilities and proximity of natural features.

Sensitive Species

Trumpeter Swan
A survey for trumpeter swans was conducted on 6-1-05 and 8-8-05, as well as during spring and fall of 2004. No swans or swan nests were found adjacent to any Whistle Stop, trail or proposed recreation locations. A pair of swans was identified in the fall within 1/2 mile of the Trail Creek Whistle Stop, outside of the nesting period. This pair was not associated with a nest.

Osprey
Ospreys are uncommon to rare throughout Alaska, localized near lakes, large rivers, and coastal bays. Occasionally, osprey migrate through the project area and sightings are reported. No nests are known in the project area.

Management Indicator Species

Management Indicator Species that may be present during project construction and future use include brown bears, moose, and mountain goat.

Brown Bear
The Kenai Brown Bear has been the subject of continuing study for over 20 years (Interagency Brown Bear Study Team, 2001). Brown bears move throughout the Kenai Peninsula using the resources of the ecosystem (mountain-side den sites, alpine foraging areas in the spring, riparian areas and fish streams in the summer, and upland berry patches in the fall). In spring, female brown bears with cubs are associated with upland habitats, in close proximity to cover. They are not closely associated with riparian areas, and avoid salmon streams until later in summer. They tend to stay near the den after emergence. Primary forage includes horsetail, skunk cabbage, grasses, and sedges associated with riparian areas, wet meadows, and forested areas (Suring et al*., in press*).

A recent genetic study found that brown bears are not genetically isolated from the mainland, and appear genetically stable (Jackson et al.). The total number of brown bears on the Kenai Peninsula is uncertain. Habitat modification and human activities such as road construction, residential and commercial developments, mining, timber harvest, and outdoor recreation has reduced the habitat of the brown bear on the Kenai Peninsula (Suring et al., 1998). Habitat modification and human activities have increased the number of brown bear killed in defense of life and property (DLP) (Suring and Del Frate, 2002).

To help mitigate such effects, the Brown Bear Core Area prescription was developed in the revision of the Forest Plan for the Chugach NF. This prescription was applied to selected landscapes and their associated habitats designed to be managed to meet population objectives for brown bears and to reduce dangerous encounters (especially DLP) between humans and brown bears. Such areas provide foraging sites, security cover and travel corridors to

meet the seasonal needs of brown bears. The Recreation Opportunity Spectrum ranges from Primitive to Roaded Natural, and new facilities such as viewing sites or interpretive signs, along existing roads or trails, are discouraged but may be constructed for minimizing or controlling bear-human interactions. Typically, trails will have a very low degree of use. Human access to the area may be difficult and is not encouraged. A Forest Plan standard recommends providing visitor education programs that emphasize minimizing bear-human conflicts for those entering brown bear core areas (Forest Plan 4-57, 4-58).

Repeatedly, habitat use, quality and availability are identified as important elements of brown bear management (IBBST 2001, Suring et al., 1998, USFWS 1993, Rhode et al*. in prep*., Suring et al. *in press*). Here the issue revolves around the importance of human activity with potential to displace bears from important habitats, and increases in mortality risk from DLP incidents.

Primary habitat for brown bears is identified as fishable reaches of salmon streams by both movement-based analyses and habitat-based analyses (Graves et al., *in prep*. Suring et al., *in press*). Salmon are a dominant food source for bears, used to increase bears fat stores for hibernation (Hilderbrand et al., 1999). Trail Creek is anadromous, actively containing spawning salmon from June through September (much of the project duration). It is a primary source of protein for brown bears living in this core area. Chugach National Forest GIS coverages display Trail Creek as a Class I stream (classified as having both anadromous and resident fish populations) until it takes a turn heading directly towards Trail Glacier. At this turn, Trail Creek changes to a Class III stream, which is classified as fishless. Surveys conducted by Chugach National Forest fisheries biologists confirmed the lack of fish presence along Trail Creek at this juncture and to the headwaters of Trail Creek at the base of Trail Glacier. This means that the likelihood of encountering a bear on the Trail Glacier Trail is less than encountering a bear along the anadromous section of Trail Creek.

Human presence alters the numbers of bears that feed in salmon streams, along with temporal and spatial patterns of bear feeding (Rhode et al., in prep.). When people are present, less bears frequent salmon streams. Bears that continue to feed on the stream alter their feeding times to different parts of the day (later at night) or places where people are not present (Rhode et al., in prep). Despite spatiotemporal changes, results of a two-year study indicate that bears body weight and composition were unaffected by the presence of people. Yet the energy expenditure for bears significantly increased for those changing feeding locations (Rhode et al., in prep). Long-term effects are not known.

Interestingly, boars and sows react differently to human presence. Nevin and Gilbert (2005) show that dominant boars are often displaced by human presence. This leaves gaps in fishable areas that sows, or sows with cubs use. While this could increase the reproductive potential of brown bears, it can also serve to increase DLP incidents.

These studies demonstrate that bears can be displaced by people (either by sex, timing and location). They do not evaluate long-term affects. They do insinuate that bear displacement could be contingent on the presence and availability of alternative food resources (S. Farley pers. comm). If alternative foods are readily available, a bear may be more likely to leave an area frequented by humans. Hence, understanding the distribution and availability of food may help assess the likelihood displacement of bears, from places that bears are feeding, and the affects the displacement may have over time.

Although Mace and Waller (1996) report that bear use seems to increase as distance from trails with campsites increased, grizzly bears can habituate to ongoing and predictable human activity. This can be both good and bad. It is good in that predictable human activity probably will not displace bears from preferred foraging areas or disturb crucial life processes. It can be negative though, where human activity is not closely regulated because habituation can be accompanied by food conditioning (that is, bears are conditioned to associate people with food). This can create a dangerous bear (Herrero, 1985).

Habituated but not food-conditioned bears can also be undesirable where human behavior is unpredictable. People may act inappropriately in close proximity to habituated bears and precipitate an aggressive response (Gilbert, 1989). Habituation usually leads to bear mortality from human conflict, hunter vulnerability or motor vehicle collision.

Moose

Moose are associated primarily with early to mid-succession habitat and riparian areas (USDA-Forest Service, 2002). On the Kenai Peninsula, limitations on population growth include winter habitat, predation, hunting, and mortality from vehicular collisions (Lottsfeld-Frost, 2000). Moose habitat exists throughout the project area and moose sign was noted in almost all areas during ground surveys. Additionally all individuals were consistently observed in the Placer River Valley during flight surveys conducted between 1993-1998.

Mountain goats

Mountain goats use cliffs, alpine, and sub-alpine habitats. They are generally found near steep cliffs with slopes over 50 degrees. Goats are most abundant in the highly glaciated coastal mountains and least abundant along the relative dry west slopes of the Kenai Mountain range where they coexist with Dall's sheep (Del Frate, 1994). Cliffs and steep broken ground are used as habitat to escape from predators. Mountain goat habitat typically lies above trail corridors in the alpine and on steep-rugged slopes. Goats have been sighted or sign has been noted at lower elevations. These locations are used by goats for travel between primary habitat areas or for winter foraging in old growth hemlock stands.

Some of these travel or foraging areas are within the project area. Primarily it is winter, not summer habitat that may limit goat populations in South-central Alaska (Suring et al., 1992). The Forest Plan aims to locate concentrated human activity away from important winter (occupied ~ November – April) and kidding (occupied ~May-June) habitats.

Species of Special Interest (SSI)

Bald Eagle

Bald eagles in South-central Alaska generally nest in old cottonwood trees near water and use the same nest each year (Daum, 1994). The nesting season is generally from March 1 to August 31 (USDA-Forest Service, 2002). A survey for bald eagle nests occurred on 5-4-05. No bald eagle nests were found.

Northern Goshawk

Northern goshawks are year-round residents of the Chugach National Forest (USDA-Forest Service, 1984). The majority of goshawk nests on the Kenai Peninsula are in old growth hemlock-spruce forests. Such forests are characterized by large-diameter trees having a closed canopy, with exposed gaps and an open understory (USDA-Forest Service, Seward District Goshawk files). The amount and location of feeding and nesting habitat appears to limit population viability in Southeast Alaska (Iverson et al., 1996). A survey completed May 4, 2005 found no primary goshawk nesting habitat in the area.

Marbled Murrelet

Marbled murrelets are medium sized seabirds that inhabit costal waters, inland freshwater lakes, and nest in inland areas of old-growth conifer forest on the ground (Carter and Sealy, 1988). Their presence has not been documented within the study area though potential may exist.

Townsend's Warbler

The Townsend's warbler is a neo-tropical migrant that breeds in Alaska. They are largely restricted to mature forest with tall coniferous trees, and are abundant in large undisturbed tracks of continuous forest, but will also use forest in late successional stages (Matsuoka et al., 1997). They are likely present in the study area given the availability of habitat.

Migratory birds

The FS works under an MOU with the USFWS to protect migratory birds. The Revised Forest Plan lists some migratory birds as threatened, endangered, sensitive, or species of special interest. Most species listed are considered common or abundant on the forest.

Canadian lynx, Gray wolves and wolverine

Canadian lynx are most likely found within the project area in relatively low numbers. Lynx use a variety of habitat, including spruce and hardwood forest. They require a mosaic of conditions, including early successional forests for hunting and mature forests for denning (Koehler and Brittell, 1990). Recent research suggests that lynx utilize large blocks of connected forest habitat with a mosaic of age classes (Seidel et al., 1998).

Gray wolves are habitat generalists, with main prey consisting of ungulates (Mech, 1970). Wolves usually live in packs that include parents and pups of the year. Pack size ranges from 2 to 12 animals. Wolves normally breed in February and March and the pups are born in May or early June (Stephenson, 1994).

Wolves have been documented as sometimes abandoning a den and moving pups to an alternative den if disturbed by humans (Mech et al., 1991). There are approximately 10-11 wolf packs on the Seward Ranger District (Ted Spraker, personal communication) and another 2 packs range across the Placer Valley, Turnagain Arm, and Portage Valley on the Glacier Ranger District (Cliff Fox, personal communication).

Wolverines have been characterized as one of North America's most rare mammals and least known large carnivores. They live in montane forest, tundra, and taiga (Wilson, 1982). They are primarily scavengers but also hunt birds and rodents, and will eat fruits, berries, and insects when other prey is unavailable (Hash, 1987). Although wolverines are difficult to survey, recent work indicates wolverines are distributed at a relatively low density across the mountainous areas of the Kenai Peninsula (Golden et al.).

Environmental Consequences

We used natural history, habitat requirements, GIS analyses, consultation with State and Federal biologists, Forest Plan direction, and review of pertinent literature to investigate the significance of potential disturbance for the species described in the Affected Environment section. Potential impacts to each species were assessed using the following ranked approach to address disturbance impacts on wildlife species (US Department of Interior, 1994).

Negligible effects

- No species of concern are present, no or minor impacts expected
- Minor impacts that do occur have no secondary (long-term or population) effects

Low Impacts

- Non-breeders of concern present in low numbers
- Habitat is not critical for survival; not limited to the area targeted for use, etc.

- No serious concerns expressed by State or Federal fish and wildlife officials

Moderate Impacts

- Breeding animals of concern are present and/or present for critical life stages
- Mortality/interference with activities necessary for survival are likely to occur occasionally
- Mortality/interference are not expected to threaten the continued existence of species in the area
- State and Federal officials express some concern

High Impacts

- Breeding animals present in high numbers and/or during critical life stages
- Areas have history of use during critical life stages during critical periods. Habitat is limited and animals cannot relocate to avoid impacts
- Mortality or other effects (injury, physiological stress, effects on reproduction and young raising) are expected on a regular basis; these effects threaten the continued survival of the species
- State or Federal officials express serious concern

Threatened and Endangered Species

No threatened or endangered species occur in the project area. Therefore, no direct, indirect or cumulative effects are expected from any of the alternatives.

Sensitive Species

Trumpeter Swan

Swans have been documented to use Trail River and if nests are found in the future, the rafting trips potentially promoted by this project could disturb nesting swans. Assuming mitigation measures defined in Chapter Two are implemented, we expect the project to have negligible effects on Trumpeter Swan populations on Chugach National Forest.

Osprey

There are no reports of ospreys nesting along the trail route nor are there any recorded nest locations on either the Seward or Glacier Ranger Districts. Therefore, assuming mitigation measures defined in Chapter Two are implemented, we expect the project to have negligible direct, indirect or cumulative effects on Ospreys.

Management Indicator Species

Brown Bears

We should expect more human-bear interaction along the trail networks being generated, especially near the Placer River during salmon spawning. This area is known to be preferred by bears, notably during the spawn (S. Farley personal communication). Recreation facilities without design features preventing bear access to garbage, food stuffs, or other bear attractants associated with human activity, may alter bear behavior in such a manner resulting in human-food conditioned bears. These animals present a potential danger to backcountry users and increased risk of DLP bear death. Over most of the project area, increased recreational activities may cause temporary disturbance or displacement of bears; but assuming mitigation measures and design features defined in Chapter 2 are implemented, generally negligible to low impacts are expected.

However, one specific area of concern is related to the proposed action is associated with the Grandview and Hunter Whistle Stops. Activities and facility development associated with these stops would result in increased human activity within land prescribed under the 2002 Forest Plan as a Brown Bear Core Management Area (BBCMA). These areas are a Forest Service contribution to an interagency effort aiming to sustain viable populations of brown bears on the Kenai Peninsula. Specifically the two proposed recreational opportunities that intersect lands managed as BBCMA are:

1. Trail Glacier Trail - Leading from the Grandview Whistle Stop to Trail Glacier
The Trail Glacier Trail is proposed for a Trail Class Level 3, implying a trail of moderate development, with an obvious and continuous tread, in a semi-primitive setting. Approximately a half mile of trail intersects the Brown Bear Core Area. Bears are apt to use this trail no differently than other trails on the Forest.

While development of this trail does have the potential to affect Brown Bears, three important factors will greatly minimize the potential effects: (1) only a half mile of the four mile trail goes through the Brown Bear Core Area, therefore trail users are spending a minimal amount of time in the Brown Bear Core Area; (2) the proposed trail is not adjacent to, but separated from Trail Creek by steep and rugged topography, lessening the potential for human-bear interactions; and (3) the section of Trail Creek that parallels the proposed Trail Glacier Trail is classified as a Class III section of stream, or fishless.

2. Rafting on Trail Creek from the Hunter Whistle Stop
This proposed activity would result in a commercial rafting operation using Trail Creek within the BBCMA. Rafting on Trail Creek has the potential to increase potential human-bear encounters and it may also displace bears from important feeding areas. Trail Creek is the primary source of fish protein for brown bears in

this core area. Any increase in human presence on this stream will serve to displace bears from utilizing this fish resource. The effects of this displacement occur across time, space and sex. Long-term effects are unknown, but short-term effects depend on amounts of people, and increase in energy expenditure by bears (Rhode et al., in prep.)

The Forest Plan defined 70,360 acres of BBCMA and though the proposed action only directly overlaps a small portion of core area (13,913 acres in the Whistle Stop Project area) it is difficult to define the spatial extent of potential effects related to increased human use. Perhaps most importantly, displacement of brown bears from key feeding areas isolated within the Trail Creek riparian corridor, or any increase in mortalities from DLP would be contrary to the intent of the Brown Bear Core Management Prescription. Therefore, the proposed rafting operation on Trail Creek, where users will be conducting day-long trips completely immersed in the Brown Bear Core Area has the potential to result in a high level of impact on brown bear populations on the Kenai. Conversely, development and subsequent use of the Trail Glacier Trail, where visitors will be spending minimal time in the Brown Bear Core Area and will not be in the area of fish habitat, will result in a low impact on brown bear populations on the Kenai.

In short, brown bear habitat attributes are not the same throughout the BBCMA. While the BBCMA discourages human access, much of the brown bear activity is expected to concentrate on the anadromous reaches of Trail Creek. The lack of anadromous fish and geographical separation of the Trail Glacier Trail from Trail Creek lessens the potential for human-bear interaction, and increases the acceptability of this activity.

Moose

Increased recreation activity associated with the proposed action may cause isolated events of disturbance of individual animals and could possibly facilitate better access for moose hunting. The direct, indirect and cumulative impacts are assumed to be negligible as there is no data to suggest that any specific aspect of this project will adversely impact population numbers or viability.

Mountain Goats

Given this action is proposed primarily for low elevation sites and resulting facilities do not occur within known important habitat, an increase in recreation users should not significantly impede occasional travel by goats between important habitat areas. Direct, indirect, and cumulative impacts from project implementation on goats or their habitat are considered to be negligible.

Species of Special Interest (SSI)

Bald Eagle
Potential nesting habitat is unlikely due to limited mature cottonwood trees (preferred nesting sites). Assuming mitigation measures defined in Chapter two, we expect negligible direct, indirect and cumulative effects on this species.

Northern Goshawk
Some large trees may be removed during trail and facility construction, which may affect some individual birds, but again, goshawk nesting in this area of Chugach National Forest remains unlikely. The project may displace individual birds (e.g., from foraging areas), but is not expected to impact their population and thus we expect negligible direct, indirect and cumulative effects.

Marbled Murrelet
The project could potentially affect individual birds, although the project area does not contain old growth conifer forests favored for nesting. Direct, indirect and cumulative impacts are expected to be negligible for this species.

Townsend's Warbler
The project could potentially affect individual birds, although the project area does not contain old growth conifer forests. The project may impact individuals, but will have negligible direct, indirect, or cumulative impacts on populations.

Migratory Birds
Overall, the amount of habitat that would be affected is minimal compared to what is available within the project area. The project may impact individual migratory birds by removing nesting substrate during construction, but direct, indirect or cumulative impacts at the population level are expected to be negligible.

Canadian lynx, Gray wolves and wolverine
Hunters or trappers throughout the project area may harvest Canadian lynx, gray wolves and wolverine. This project entails summer use only and thus will not resulting in increased accessibility for winter trapping. We lack specific information that would link aspects of this proposal to specific environmental consequences or project overlap with known, important habitat features for these species. However, it should be noted that generally an increase in human activity to remote areas has potential to displace large carnivores (Claar et al., 1999). As such we anticipate that a low level of direct, indirect and cumulative impacts to these species may result from the proposed action.

Environmental Consequences of each Alternative

Please reference Chapter 1 for the Issue Statements and related measurements/indicators used to determine the environmental consequences of each alternative in this document.

No Action

No harmful effects are expected assuming no action is taken on the proposed project.

Effects of Action Alternatives on Brown Bears

The No Action Alternative, Alternative 3, and Alternative 4 all have a similar level of effect (negligible-low) on bears as they would include limited recreation facilities within the BBCMA. Alternative 2, which includes the Trail Glacier Trail would have a moderate impact to brown bears. The Proposed Action and Alternative 1 would both have a high impact to brown bears with the addition of the rafting operations between Hunter and Trail Creek (Table 3-6).

Another related concern is that the Proposed Action and Alternative 1 may not be consistent with the intent of Forest Plan Management Prescription for this area. Under the Forest Plan it is not the intent of the BBCMA to provide additional recreation opportunities but rather to *"…meet population objectives for brown bears and to reduce dangerous encounters between humans and brown bears."* (Forest Plan 4-54). BBCMA objectives discourage the displacement of brown bears from important food resources and aim to decrease risk of DLP brown bear deaths.

Overall, Alternative 1 and the Proposed Action will have a high potential impact on brown bears, both in and outside of the BBCMA. Perhaps more importantly these options appear to oppose objectives for BBCMA as outlined in the Forest Plan.

Alternative 2 has a moderate potential impact on brown bears, and this impact could be mitigated by design features and mitigation measures defined in Chapter 2.

Alternative 3 contains the Grandview Interpretive Loop Trail only and potential impacts for such a development could be mitigated by design features and mitigation measures defined in Chapter 2. Alternative 4 has no human development at Grandview and would have negligible impact on this species (Table 3-6).

Table 3-6. Grandview & Trail Creek Area Concerns Relative to BBCMA						
	Rafting between Hunter & Trail Creek	Trail in Brown Bear Core Area	Interpretive Loop Trail	Adjacent Whistle Stop Present	Viewing Platform	Impacts to brown bears
No Action						None
Proposed Action	X	X	X	X	X	High
Alternative 1	X	X	X	X	X	High
Alternative 2		X	X	X	X	Moderate
Alternative 3			X	X		Low
Alternative 4						Negligible

Effects for All Other Species Common to all Action Alternatives
The species within this category were determined to experience negligible to low impacts assuming mitigations and design features defined in Chapter two are implemented along with the proposed action. Our concern is focused on impact to populations, not individuals and as such we are comfortable with possible low or negligible effects on species within this group.

One may make the assumption that alternatives which impact the least number of acres will impact the least number of individuals; and that alternatives that contain the least number of user days will have lessening degrees of overall effect. However, the distribution of the individuals in the population may not be equal across space and time and we are not comfortable making the above assumption. We lack specific information regarding potential disturbance impacts resulting from the range of alternatives surrounding the proposed action and as such cannot reliably estimate species, specific impacts for each of the alternatives.

Summary of Direct, Indirect, and Cumulative Effects
Overall, direct effects to habitat from trail construction and facility construction activities are low-negligible in all alternatives, for all species, except brown bears which may be high depending on the alternative chosen. Consideration of potential impacts to brown bears should be taken seriously. The Forest Service partners with the USFWS, NPS and ADF&G to promote a healthy population of brown bears on the Kenai Peninsula. Important objectives of this cooperation are (1) to provide bears with refuge from human generated displacement and (2) decrease DLPs.

Outside of brown bears, indirect effects from recreation are not expected to be substantial. Cumulative effects include additional habitat loss, additional disturbance to wildlife, and reduction of habitat quality, as recreation and development increases across the forest over time. Positive cumulative effects

also include increasing awareness of wildlife and habitat needs, as watch-able wildlife, interpretation and education increases with new opportunities over time.

Possible cumulative effects specific to brown bears and the BBCMA include:

1. Commercial recreation leasing on State Land at Grandview. Development of a Whistle Stop at this site may encourage the State to develop lands at this Whistle Stop location, and encourage more people into the Brown Bear Core Area.

2. Increased visitation to the brown bear core area and rafting on Trail Creek is likely to raise the opportunity for various outfitting and guiding ventures, including rafting and bear viewing. This may contribute toward displacing brown bears from the brown bear core area.

Hydrology

Affected Environment

The proposed Whistle Stop project lies within the Placer and Trail River watersheds. These are large glacially sculpted valleys on the Kenai Peninsula with elevations ranging from sea level to 6500 feet and widely varying climate, landforms, and hydrology. This area receives about 30 to 60 inches of annual precipitation, with up to 140 inches falling annually in the high-elevation glaciated areas of these watersheds (USDA Forest Service, 1982; Western Regional Climate Center, 2005). September and October generally receive the most precipitation, and winter months receive more precipitation than summer months. Early May snowpacks average about 77 inches at Grandview and exceed 100 inches in the high-elevation glaciated areas to the east (USDA Natural Resources Conservation Service, 2005).

Landforms in the Whistle Stop project area were primarily shaped by Pleistocene glaciation and post-glacial fluvial erosion during the Holocene. Glaciers currently cover about 20% of the Placer and Trail River watersheds, including the Spencer, Bartlett, and Trail Glaciers. These glaciers are all receding. Spencer Glacier has receded about 1.5 miles since its early 20th Century terminus, resulting in the formation of Spencer Lake at its terminus within the last 55 years.

Rivers and streams in the project area are primarily large glacial rivers draining active glaciers, or small, high gradient streams draining steep valley sides. Low gradient floodplain channels also exist in the lower valley floors. The glacial systems are dynamic, with high sediment transport rates and braided channels. As a result of the formation of Spencer Lake and its capacity to capture glacial sediment, the Placer River at the Spencer Lake outlet and downstream of the railroad bridge has transformed from a braided outwash channel to a single

meandering channel. The terminal moraine deposit at the lake outlet provides stability for the Placer River channel, although channel migration is occurring on the outsides of the meander bends. The large alluvial fan from the upper Placer River carries high sediment loads and maintains the outlet elevation of Spencer Lake. The gravel and cobble banks of the Placer River are very susceptible to erosion if disturbed. Because of glacial recession, icebergs have become less numerous in Spencer Lake, causing increased bank erosion from wind-driven waves on the west end of the lake. The active channel of the Trail River near the Hunter Wye is migrating west, threatening the railroad tracks despite ongoing efforts to artificially direct the flow away from the railroad.

Palustrine wetlands are widespread throughout the valley floors of the Placer and Trail River Valleys, including the area around Luebner Lake. Small palustrine wetlands are also found scattered in the uplands and upper valleys of the project area. Floodplains are present in the Placer and Trail River valley floors, as well as the area west of Spencer Lake and along the lake outlet. These areas experience frequent flooding.

Streamflows in the larger rivers of the project area are controlled by glacial melting, with peak flows occurring between late June and early August and a potential for high magnitude floods in the summer and fall. Non-glacial streams, mostly on the west side of the project area, generally peak in June with less severe floods. All streams in the area can experience high magnitude, short duration floods during fall rainstorms. Water quality in streams and rivers along the proposed trail route is relatively pristine, with few influences from human activities or development. Glacial systems such as the Placer and Trail Rivers produce high sediment loads, with turbidities increasing during high flows.

Avalanche hazards exist in many places in the Whistle Stop project area during the winter season from October through April. This trail system will not be managed for winter use, although some trail segments and bridges may be at risk of damage from avalanches.

Environmental Consequences

The proposed Whistle Stop project would have limited effects on water resources and hydrologic processes in the Placer River and Trail River watersheds. Potential limited effects include localized stream bank erosion, damage to wetlands and floodplains, and minor water quality concerns. However, the effects of hydrologic processes on the project can be potentially severe. Frequent flooding, natural channel migration, and avalanches can damage trail segments, bridges, and structures, especially where they are constructed near stream banks or in floodplains. Following regional Best Management Practices (BMP's) (USDA Forest Service, Alaska Region, 1996) in construction and maintenance will reduce the effects of these natural processes on trails and

structures. The “phase-in” approach to development of this project will cause no additional detrimental effects on hydrology or water resources.

Trampling of stream banks near trails and areas of concentrated use can cause soil compaction, loss of riparian vegetation, and increased bank erosion rates, which can lead to channel widening, sedimentation, degraded water quality, and loss of fish habitat. The sensitivity of channels to these impacts can be related to channel type process group (USDA Forest Service, Alaska Region, 1992). The most sensitive channels to human-caused bank erosion along the trail route are the Floodplain, Palustrine, Moderate Gradient Mixed Control, Glacial Outwash, and Alluvial Fan channels. Because Glacial Outwash channels in the project area have high natural migration rates and high sediment loads, the effects of human-caused bank erosion on these channels would be minimal. However, more considerable bank erosion concerns exist along the Placer River just downstream of Spencer Lake, where the trail route runs parallel to the river.

Impacts from the project to floodplains and wetlands would be minimal. Floodplains and wetlands that may be impacted include those at Luebner Lake and Spencer Lake. Potential impacts include loss of riparian vegetation, increased runoff and erosion, and trampling of wetland areas. These impacts will be minimized by following Best Management Practices. Erosion from the effects of concentrated use, including bank degradation, trail surface erosion, and wetland and floodplain damage has the potential to cause slight increases in sediment loads in streams and rivers in the project area. However, these increases would be minimal, especially in many of the glacial systems where sediment loads are naturally high.

Effects of Individual Alternatives

The No Action alternative would have no detrimental effects on water resources over the minimal, localized effects resulting from current use of the area. Each of the action alternatives proposes fewer activities than the Proposed Action, and the environmental effects of these alternatives on hydrology and water resources would be less than those of the Proposed Action. Although the general trail infrastructure remains the same under each action alternative, each of these alternatives would result in less ground disturbance and fewer effects on water resources in the Spencer area than would occur under the Proposed Action. Alternative 3 would greatly reduce concentrated uses and their effects on the Spencer Lake floodplain area. Alternative 1 would also reduce the effects of concentrated uses in this area, but moving facilities to the alluvial fan on the south side of Spencer Lake increases the risk of damage from shifting channels and floods on the active alluvial fan. Overall, each action alternative would have minimal effects on water resources in these two watersheds.

Cumulative Effects – Cumulative effects of this project with other past, present, and future projects and activities in the Placer River and Trail River watersheds are minimal. Multiple uses in the Spencer area could result in increased surface erosion and sedimentation, but these effects would have only small effects on the hydrologic conditions in nearby streams and rivers.

Soils

Affected Environment

Soil is the basic component of the environment; most living things as we know it today depend on the soil for the initial source of nutrients from which most other living things evolve. All renewable resources on the Chugach National Forest depend on the soil, which is considered a nonrenewable resource because of the time it takes for its formation and productivity development.

The Chugach National Forest has used the "National Hierarchical Framework of Ecological Units" (ECOMAP) as the basis for mapping landscapes, soils, and vegetation. The entire project area has been mapped at the Landtype Association level and in some places at the landtype level. Map unit descriptions at both of these levels consist of landform, complexes or associations of soils, and complexes of representative plant communities as a result of time and geomorphic process. Since this is a remote area with no road access, most of the soils information for the Whistle Stop project area was inferred from other similar map units for both of these levels.

A field visitation was made to the Spencer Glacier site to look at the proposed trails and campsites, and numerous verbal communications were made with others who visited the Grandview Valley sites for soils verification.

Spencer Glacier site. The trails located in the valley bottom are on glacial outwash gravels and sands. The soil is sandy-skeletal (greater than 35% gravel and cobble in a sandy matrix). It is well drained, deep (greater than 40 inches to water or bedrock), and well suited as a base and for material for trail construction. This soil does not have any binding silts or clay, so it is erodible by water moving fast enough to transport sand, gravel, and cobbles from either the Placer River or waves from the lake during periods of high water. Vegetation is the only natural protection the soil has from erosion, via surface protection from the plant cover and subsurface protection through binding from the plant roots. The soil on the terraces is the same as those on the outwash plains. However, the terraces are located from 5 to 20 feet above the lake and are less susceptible to erosion resulting from floods. High cut banks along the Spencer River have between 5 and 10 feet of exposed soil which is not anchored by roots and is actively eroding. This soil is very susceptible to erosion from foot trampling by people on the edges of steep cut-banks not protected by vegetation. These soils are young and have yet to develop a productive, nutrient rich, organic surface layer, hence they have low productivity. The present plant cover consists of

pioneer species, which are necessary for the natural succession of more advanced plant communities, and increased soil productivity.

Soils on the glacial moraines are loamy and loamy-skeletal (greater than 35% coarse fragments), with variable amounts of rock fragments ranging in size from less than one inch to greater than two feet in diameter. These soils provide a good base for trail construction as long as there is enough material to fill in the matrix between the larger rocks. Trail surface material is necessary, and proper trial construction techniques must include drainage to minimize surface erosion on slopes. The moraines where trails are proposed have a conifer forest plant community and have a reasonably thick and productive organic layer.

The subalpine soils are mostly shallow (less than 20 inches deep), skeletal (greater than 35% coarse fragments) loams and silt loams over a compact glacial till or bedrock. This impermeable till or bedrock restricts water drainage resulting in soils with a higher moisture content and a higher portion of wetlands. Therefore, trails must be located on the best drained soils and be constructed using techniques that are appropriate for moist soils. The productivity of these soils is representative of typical subalpine soils with an advanced successional level of plant communities.

Grandview Valley: This valley is higher in elevation than the Spencer Glacier area and is covered by snow for a large portion of the year from both normal precipitation and avalanche. Most of the trails are located along the foot slopes with some on the lower parts of the side slopes and in the subalpine. The soils on the foot slopes have a loamy-skeletal texture, are moderately deep (20 to 40 inches) to deep (greater than 40 inches), and are somewhat poorly drained to well drained depending on the location. The soil on the footslopes will have higher moisture content than those in the Spencer Glacier area because they receive significant ground water from the above slopes. The soils and sites on the foot and side slopes are exposed to disturbances from soil creep, rolling rock, and avalanches. Good location and proper trail construction techniques can mitigate these limitations. Much of the valley-bottoms will have wet soils because of poor drainage due to either bedrock, impermeable soil, or beaver dams that have created ponds and marshes. These soils are vegetated with species representative of moderate to late successional plant communities, typical to subalpine climates and the included disturbances. Hence, the productivity of the organic soil layer is fairly good. The subalpine soils will be similar to those in the subalpine described in the Spencer Glacier soils.

Environmental Consequences of each Alternative

Direct and Indirect Effects – The major direct effect on the soil resulting from the implementation of this project is the elimination of all soil productivity within the trail tread and at the campsites. All of the coarse texture soils on the floodplains and river terraces are young and have little nutrient development and hence, there will be little reduction in soil productivity. The older soils in Grandview Valley that have a significant plant cover will have a proportionally greater loss in productivity where trails and campsites are developed. The effect is still minimal because of the small area that will be disturbed from development in context to the entire area.

The major indirect effect will be changes in the soil nutrient content resulting from the treatment of human waste. Construction of pits for out-houses and other sewage treatment facilities will disturb the soils physically. Proper installation of the sewage facilities that rely on natural decomposition, although minor, may provide additional nutrients for biological growth and enhance the productivity of the soils immediate to the outhouses. Excessive trampling of the organic soils in fens (moss dominated wetlands) and the area adjacent to camp sites by people venturing off the hiking trails and out of the established camp sites will kill the plants and expose the soil to compaction, rutting, and erosion.

The soils direct and indirect effects will be in proportional to the extent of the activities proposed for each alternative. Hence, the Proposed Action will have the greatest negative effect on the soil productivity, with Alternatives 1, 2, 4 and 3 having less effect respectively because of fewer proposed facilities.

Cumulative Effects – The cumulative effects will be the result of the more miles of trails and acres of campsites, which is highest for the Proposed Action, and generally decreasing with Alternatives 1, 2, 4, and 3 respectively. As analyzed for the Revised Land Management Plan, recreational development has the largest negative effect on the soil of any other activity on the Chugach National Forest. The Revised Land and Resource Management Plan (USDA Forest Service, Chugach National Forest, 2002) and Forest Service Policy (FSM, R-10 Supplement No. 2500-92-1, 1992) specifies that no more than 15 percent of the soils may be detrimentally disturbed throughout a project area which for this project includes the Placer River and Trail River valleys. This project proposes considerably less than 15 percent disturbance; therefore, it meets these requirements. This effect can be magnified greatly, however, when trails and campsites lead people to fragile stream banks and lake shorelines.

Vegetation

Affected Environment

Non-Native Plants

To date, large populations of non-native plants have not been observed outside of areas directly affected by human-caused disturbance within the Kenai Mountains. Within the project area, non-native plants are concentrated along the railroad corridor, the railroad siding area at Spencer, and around the mine site at Spencer. Common weed species found here include: *Linaria vulgaris, Matricaria discoidea, Plantago major* var*. major, Poa annua, Poa pratensis, Taraxacum officinale,* and *Trifolium hybridum.* Since the project is directly tied to the railroad, the development and use of the Whistle Stop trails and facilities would likely result in the spread of non-native plant species into areas that presently lack such species.

Region 10 Sensitive Plants

The project area supports habitat for nine Region 10 sensitive plant species: *Aphragmus eschsoltzianus, Arnica lessingii* ssp. *norbergii, Carex lenticularis* var. *dolia, Draba kananaskis, Isoetes truncate, Ligusticum caldera, Papaver alboroseum, Romanzoffia unalaschcensis,* and *Stellaria ruscifolia* ssp. *aleutica.* Field surveys for this project found *Carex lenticularis* var. *dolia* in the vicinity of the proposed project. Specifically, a specimen was collected along the edge of a mostly dry tarn (in tarn) on 8/24/2005 in the alpine tundra zone above the terminus of Spencer Glacier. The population was located near the proposed Spencer overlook trail and cabin site. It is likely this species occupies similar habitats throughout the area. Additionally, similar looking sedges were noted in the Grandview area; however, plant phenology was a little advanced to identify them.

Environmental Consequences

Both for Non-Native Plants and for Region 10 Sensitive Plants, the potential for a phase-in approach to project development does not change the effects described below.

Non-Native Plants

No Action Alternative: Under the No-Action Alternative, existing populations of non-native plants would likely continue to persist and spread into surrounding areas, especially in the absence of an aggressive eradication program.

Action Alternatives: All action alternatives have the potential to introduce and increase spread of non-native plants throughout the project area. Direct effects would result from actual construction activities while indirect effects would result from increased human use.

Direct Effects – Weeds would likely be introduced from seeds attached to equipment and material such as contaminated gravel brought in for construction activities. Newly disturbed ground is also an ideal bed for many non-native plants to become established, especially if seed sources are nearby. Greatest potential for weed introduction and spread would come from construction in or adjacent to areas already infested with non-native plants, such as the Whistle Stop stations adjacent to the railroad corridor. Existing non-native plants from the railroad corridor could easily spread to newly disturbed ground around the Whistle Stop stations.

Indirect Effects – The implementation of any action alternative would likely increase human use in the area, which in turn would increase the potential for weed introduction and spread. Previous surveys have shown that most non-native plants are located in areas with human use. As more and more people travel through the area, they carry the risk of bringing in weed seeds attached to their clothing or shoes. In this way, seeds are transported along the trail system, near cabin and campsite locations, and other developed sites.

Cumulative Effects – Other existing or reasonably foreseeable future projects include the Alaska Railroad, Outfitter/guide special uses, the Johnson Pass Trail, the Iditarod National Historic Trail, Hut-to-Hut project, and planned mineral materials development at Spencer. The Whistle Stop project could add up to approximately 61 acres of additional ground disturbance where non-native plants could become established. Spread into undisturbed areas would likely be very slow since non-native plants are generally very rare in natural habitats.

Region 10 Sensitive Plants

No Action Alternative: The No Action Alternative would have no effect on these nine species or their habitat with the exception of impacts associated with existing activities such as the railroad, mineral extraction, and rafting outfitter/guide activities.

All Action Alternatives

Direct Effects – Direct effects would result from construction activities that would modify or destroy potential habitat or any known or unknown populations of sensitive species. Although proposed activities may impact potential habitat, direct impacts to sensitive plant populations would be rare. Only the *Carex lenticularis* var. *dolia* has been noted in the vicinity; however, the occurrences of *Carex lenticularis* var. *dolia* would not be on the direct path of the trail, but would be in the general area along the edges of alpine wet areas and very slow moving streams. Therefore direct impacts to this species would likely be minimal to none. The other species were not located during field surveys.

Indirect Effects – Indirect effects would come from trampling of potential habitat by increasing number of recreationists. Developments through open alpine areas would be of greatest concern since these areas are conducive to cross-country travel (off of developed trails) and alpine sites contain habitat for the

greatest number of R10 sensitive species in the project area (five species), including the *Carex lenticularis* var. *dolia*. Indirect effects would also come from non-native plants that compete with native plants for available habitat. As presence and spread of non-native plants increase, so do negative impacts to R10 sensitive species and their habitats.

Cumulative Effects – The Whistle Stop project could add up to approximately 61 acres of additional ground disturbance. Across the Kenai Peninsula portion of the Chugach National Forest, there are vast areas of potential habitat (over one million acres). Cumulatively, the potential loss of another 61 acres would not make a measurable effect to sensitive plants when over one million acres of potential habitat exist on the Kenai Peninsula.

Determination of Effects – Because potential and occupied habitat occurs in the project area, there is potential that sensitive species and habitat may be impacted by any action alternative. However, mitigation measures should minimize these impacts. In addition there are large areas of undisturbed habitat across the Kenai Peninsula. The proposed alternatives would only contribute up to 61 additional acres of potential habitat loss. This loss would not lead to any measurable effects to sensitive plants. Therefore the final determination of effects for all nine sensitive species is that the proposed activities may impact individuals or habitat but are not likely to contribute to a trend toward federal listing or cause a loss of viability to the population or species.

Fisheries

Affected Environment

The proposed Whistle Stop trail system and associated infrastructure would exist in the Placer River and Trail Creek watersheds. These watersheds contain 107 miles of Class I streams (streams containing anadromous fish), 24 miles of Class 2 streams (streams containing only resident, nonanadromous fish), and 107 miles of Class III streams (streams with no fish). The primary water bodies in these watersheds include Placer River, Skookum Creek, Trail Creek, Spencer Lake, Luebner Lake, and Trail Lakes. Both anadromous and resident fish species important to recreational and commercial fishing are found in these watersheds including sockeye salmon (*Oncorhynchus nerka*), chum salmon (*O. keta*), pink salmon (*O. gorbuscha*), coho salmon (*O. kisutch*), chinook salmon (*O. tshawytscha*), and Dolly Varden char (*Salvelinus malma*) (Browning, 1976; Krueger, 1977; Johnson et al., 2004).

Aquatic habitat in the project area is dynamic ranging from productive clearwater ponds, lakes, side channels, and sloughs important for spawning, rearing, and overwinter survival to less productive silt-laden primary channels and high gradient, highly contained upper valley channels characteristic of the smaller tributaries. Aquatic habitat surveys conducted by Browning (1976) and Krueger

(1977) found that the larger primary channels of streams in the Placer River drainage provide little spawning habitat for anadromous fish due to large amounts of glacial fines, large cobble, and boulder substrates. However, these channels serve as migrational corridors for spawning adults and provide juvenile fish with excellent rearing and overwinter habitat during low flow periods (late fall through spring) when suspended sediment loads are low.

Luebner Lake and its inlet stream support coho and sockeye salmon and Dolly Varden char. Although the lake is relatively small (26 acres) it is the largest clearwater lake in the Placer River watershed and most likely provides the best aquatic habitat for sockeye salmon. A Whistle Stop station and trailhead is being proposed at the outlet of Luebner Lake and care should be taken to design infrastructure in a manner that reduces impacts to this important aquatic habitat.

Endangered, Threatened, and Sensitive Fish Species

Several of the fish species present in this watershed are threatened or endangered in parts of their historical range. However, none are federally listed as threatened, endangered, or sensitive in the Placer River and Trail Creek watersheds. Nonnative fish species have not been introduced for management purposes in the project area and none have been located as a result of illegal introductions.

Environmental Consequences

Direct and indirect effects on the fisheries resource from the proposed action and all alternatives are described in the following section. Additionally, cumulative effects for all past, proposed, current, and reasonably foreseeable activities in the project area are also addressed. Because aquatic (fish) habitat is closely associated with the hydrological character and condition of a watershed and an effects analysis for hydrology and water resources in the project area has accurately addressed potential impact to aquatic habitat, this analysis will focus primarily on the biological effects to fish species in the project area.

Effects Common to All Action Alternatives

Fish Passage - In addition to the importance of preserving healthy riparian areas and natural stream processes to sustaining healthy fish populations, maintaining unidirectional fish passage wherever trails cross fish-bearing streams or wetlands is paramount. Improperly designed and installed culverts can compromise or eliminate fish and other aquatic species from upstream reaches by creating velocity barriers, shallow flow depths, length of run with no resting areas, or excessive jump heights (Belford and Gould, 1989; Clancy and Reichmuth, 1990; Castro, 2003). Fragmentation of previously accessible stream reaches can result in a loss of total available habitat and reduced population size (Vinyard and Dunham, 1994), loss of range for anadromous and resident fish, reduction of marine derived nutrients in the form of fish carcasses in upstream reaches, and

altered upstream community assemblages (Robison and Beschta, 1990). Additionally, retaining stream connectivity is critical during the onset of winter to allow fish in smaller stream reaches to migrate to better overwintering habitat in sloughs, ponds, and deeper primary channels (Cedarholm and Scarlett, 1981; Peterson, 1982).

Design and construction of the proposed and alternative trail routes will include many stream crossings. However, very few of the crossings will be associated with Class I (anadromous) or Class II (resident) streams. Bridges or elevated boardwalks are planned for the three anadromous and three resident streams that the proposed trail routes cross. However, because design for the trails has not been finalized, stream crossing structures may change. In any case, upstream passage will be maintained on all fish-bearing streams.

The greatest area of concern will likely be the section of trail crossing wetlands from the Luebner Lake Whistle Stop to the adjacent hillside east of the wetlands. If this section of trail is not designed and constructed correctly, upstream access to valuable spawning and rearing habitat may be compromised leading to detrimental impacts to fish stocks that use Luebner Lake and its tributaries. Hydrologists, biologists, and engineers will work closely to develop effective stream crossings that avoid impacts to the fisheries resource and aquatic habitat and design monitoring plans that will assure continued unidirectional movement.

Direct and Indirect Fish Mortality – Short-term fish mortality could result during the trail building phase of the Whistle Stop Project and all action alternatives. Direct mortality could occur as a result of trail building equipment crossing streams and excavating in the stream for placement of bridges or culverts. Indirect mortality could be the result of elevated sediment loads caused by instream construction. However, the Forest Service has a Memorandum of Understanding with the State of Alaska that allows instream work only during certain times of the year. Currently, this window of opportunity is from May 15 through July 15 of each year. This window allows time for the previous year's fry to emerge from gravel and cobble substrate and ends before the majority of spawning adults arrive in freshwater from the marine environment. Therefore, significant direct and indirect mortality to fish species as a result of project construction is not expected to occur.

Sportfishing - Luebner Lake and its tributaries support both coho and sockeye salmon and Dolly Varden char. As mentioned previously, this lake is essential for supporting populations of sockeye salmon in the Placer River watershed.

An indirect impact of the Whistle Stop project to the fisheries resource at Luebner Lake may be increased sportfishing pressure by anglers dropped off at the Luebner Whistle Stop station. Currently, adult salmon tend to congregate and hold at the confluence of Luebner Lake and the Placer River leaving them susceptible to angling or illegal snagging. This has not been a significant

concern in the past because access to this area is difficult without the use of an airboat or jet skiff during higher flows. Because of this, angling pressure is low and special regulations are not needed to help protect these fish. If angler access is enhanced by the Whistle Stop, impacts associated with sportfishing may be of greater concern in the future.

Currently, fish populations in the project area are managed under Alaska Department of Fish and Game (ADF&G) sportfishing regulations and daily harvest limits. Fishing for salmon in the Trail Creek watershed is closed year round. However, most of the Placer River drainage, including Luebner Lake, is open to sportfishing year-round for all species except chinook salmon. If warranted, special angling regulations could be proposed to ADF&G to help protect adult salmon once they arrive at the outlet of Luebner Lake.

Effects of the No Action Alternative

Under the No Action Alternative, there would be no implementation of the proposed activities. Therefore, no detrimental effects to the fisheries resource in the Placer River and Trail Creek watersheds would occur as the result of no action.

Comparison of Alternatives

Whereas the proposed action and each of the other action alternatives are not expected to have significant impacts on the fisheries resource, the alternatives with the greatest amount of development and ground disturbance would tend to present a higher risk. Overall, the proposed action would have the greatest potential for impacts because it would generate the greatest amount of development and attract a greater number of forest visitors. Each of the other alternatives has a lesser degree of development and therefore would assumedly present less risk to fish species and aquatic habitat in the proposed project area.

Cumulative Effects

Several other past, present, and future projects could affect the fisheries resource in the analysis area. These projects are listed below with a brief summary of potential impacts.

Iditarod National Historic Trail - This Forest Service trail project will occur, in part, near the Trail Creek Whistle Stop of the proposed action. This may increase the number of visitors in this particular area but should have very little effect on the fisheries resource because it will not increase the number of stream crossing in the analysis area. Additionally, sportfishing for salmon is not allowed in this section of Trail Creek so over-harvest should not be a concern.

Hut-to-Hut proposal – This project proposal would connect one of the proposed huts to the Whistle Stop trail system by means of the Center Creek Pass Trail. The two trails would connect near the railroad bridge over the Placer River. This connector trail may increase the number of stream crossings in the analysis area but these streams are highly seasonal and do not provide valuable fish habitat because they tend to dry up by mid summer after the snow has melted.

Commercial recreation leasing on state land at Grandview – Similar to the Iditarod Trail, development of additional commercial recreation could increase the number of visitors to an area (Grandview) of the proposed Whistle Stop project. Resident fish populations do exist in the Grandview area and depending on the degree of additional development, increased human use and associated facilities could create greater concerns for these resident fish.

Outfitter/Guide Use – Currently, several types of Outfitter/Guides are permitted to operate with clients in the analysis area. Guided activities include snowmachine tours, rafting, canoeing, fishing, hiking, skiing, and flight seeing. With the development of the Whistle Stop project and associated facilities, opportunities for additional guided adventures would probably occur. Snowmachine tours and skiing do not present a significant risk to the fisheries resource because these activities occur in the winter when most streams and lakes are frozen and a buffer of snow protects riparian areas and instream degradation. Flight seeing would not disturb the resource as well. However, increased boating, guided fishing, and hiking all have the potential to cumulatively impact the fisheries resource and associated aquatic habitat. Each of these activities could contribute to streambank degradation that might potentially impact aquatic habitat and may increase harvest of adult fish returning to spawn.

Mineral extraction at Spencer – Commercial gravel mining and private gold mining has occurred in the past in an area immediately adjacent to the outlet of Spencer Lake. Commercial operations are likely to commence again and motorized use has been approved for this area. This, in addition to development associated with the Whistle Stop infrastructure at Spencer, could increase ground disturbance and surface erosion into the Placer River. However, this likely will not significantly impact the fisheries resource or aquatic habitat because the Placer River is already a naturally turbid river from glacial activity in the area. Additionally, over-harvest as a result of higher human densities will not be a concern because the turbid waters in this area are not conducive to successful sportfishing.

Summary of Direct, Indirect, and Cumulative Effects – Overall, direct, indirect, and cumulative effects associated with the proposed Whistle Stop project will be limited and do not create any significant concerns for fish and aquatic habitat in the Placer River and Trail Creek drainages. Additionally, because no listed or sensitive fish species are known to exist in the project area, concerns for this resource are further alleviated and do not warrant special consideration.

However, this analysis has been based on the assumption that associated trails and facilities will be constructed using Best Management Practices described in the Soil and Water Conservation Handbook - FSH 2509.22 (USDA Forest Service, Alaska Region,1996) and the Aquatic Habitat Management Handbook - FSH 2090.21 (USDA Forest Service, Alaska Region, 2001). Implementation of these conservation measures would minimize adverse effects, thus protecting and conserving a sustainable fisheries resource and its ability to contribute to healthy ecosystems. In the event ecological processes are being compromised by the project and associated activities, mitigation efforts to correct the impacts should be a priority.

Heritage

Affected Environment

While historic transportation, mining and settlement activities have impacted the landscape of the region, there is still a potential that prehistoric materials exist within the Whistle Stop project. Alaska Natives were employed as guides, tradesmen, porters and workers for the miners in the region. Additionally, Captain George Vancouver documented the existence of the Portage Pass trail and its use by Native and Russian traders in the region (Vancouver, 1798:115).

Gold claims were first staked on the Kenai Peninsula in the 1880s, but it was not until 1896 that the Turnagain Arm Gold Rush began in earnest. The rapid influx of non-Native people first led to the formation of the towns of Hope and Sunrise, followed by Moose Pass and Cooper Landing. By 1910, placer prospecting was occurring west of Bartlett Glacier and quartz claims were staked near Hunter.

Increased population and the need for goods and services led to the development of new transportation routes and the use of older prehistoric routes. The formation of these routes assisted in expanding human activities. These activities included road houses, homesteads, fox farms, tie hacking activities, trapping, and the establishment of recreation based activities (lodges, big game and fishing services and smaller recreation cabins).

Initial surveys for the Alaska Central Railroad (what would eventually become the Alaska Railroad) began in 1902 and by 1906, the railroad had reached an extremity of 46 miles (Barry, 1997). In 1909, the railroad company was reorganized as the Alaska Northern Railway. This company also went into bankruptcy in 1911, but not before finishing the line between Seward and Kern (71 miles). In 1912, a presidential commission began studying the potential for a future government railroad. The Alaska Engineering Commission, or AEC, was formed and assigned the tasks associated with the survey and construction of the new government railroad. In 1915 the remains of the Alaska Northern [Alaska Central] Railway were purchased by the federal government and rebuilt

in preparation for connection with new lines coming south from what would become Anchorage (Wilson, 1982). In 1922, the new railroad was officially named the Alaska Railroad and was fully operational by 1923.

Construction of the railroad in the Placer River Valley began in 1905 with the establishment of the road line. A large winter camp was constructed that year at Tunnel, with an additional camp adjacent to the proposed loop at Mile 54. The camps were established for the construction of two 14° curves, seven tunnels and a number of high bridges over the next couple of years between Spencer Lake and Grandview (Brown, 1975). The construction of the loop district was considered nationally to be an important achievement in railroad engineering. Rehabilitation of the Placer River Valley section of rail line occurred in 1915 with the establishment of the Alaska Railroad. Station gangs from Tunnel, Grandview and Hunter conducted much of this work. In 1951, the Alaska Railroad changed the alignment of the tracks, and stopped using five loop bridges, one snowshed and the largest of the tunnels constructed (Tunnel #1). Many of these structures and the remains of them are now located on Chugach National Forest lands as a result of this realignment through the Loop District.

Previous field surveys and literature reviews have located 55 sites in the project area. Historic sites include roadhouses, cabins, a homestead, railroad tunnels, snow sheds, station houses, railroad stops, a steam plant, sawmill, rail lines, telegraph line, bridges, levees, historic trails and one historic railroad district. One site is on the National Register of Historic Places (NRHP). SEW-00139, Alaska Central Railroad Tunnel #1 (Loop District #1), is a 714' long railroad tunnel with a 235° curve constructed in 1906. Use of the tunnel was discontinued in 1951, when the rail line was re-routed to the east following the receding of Bartlett Glacier. Archeological site monitoring of the tunnel in 2005 found it to be in good condition. Additionally, one trail has been designated a National Historic Trail. The Iditarod National Historic Trail is a historic transportation route used to transport mail and supplies to communities from Seward to Nome during the early mining period, and was the first trail in the nation to be congressionally designated a National Historic Trail in 1978.

Of the remaining sites, 4 have been determined eligible and 1 ineligible. The remaining 48 sites are unevaluated.

Environmental Consequences

General Effects

A complete field inventory has not been concluded. At this time, approximately 50% of the project area has been surveyed and inventoried. As a result, the number and extent of heritage resources in the project area is unknown at this time. When the field surveys are completed in 2006, appropriate identification, evaluation, mitigation and monitoring will ensure that any effects are mitigated or avoided where possible. A detailed specialist report will be placed in the project record upon completion of the field surveys.

No Action Alternative
Direct, indirect and cumulative effects – Heritage resources will continue to deteriorate, and the documented looting and vandalism currently occurring at one site near Grandview would continue.

Proposed Action, Alternative 1 and Alternative 2
Direct and indirect effects – There will be direct effects to multiple sites at the Grandview area. The Grandview Whistle Stop, Trail Glacier Trail trailhead and Grandview Interpretive Trail trailhead are within known cultural sites or features. Additionally, there is the potential for looting and vandalism with the increase of visitors to these sites.

While the Bartlett Whistle Stop, Bartlett Glacier Trail and Bartlett Glacier Cabin have not been surveyed, they are within a known historic district that is eligible for the National Register of Historic Places. There is the potential for adverse effects. A detailed specialist report will be completed following the field survey.

The proposed developments within the Spencer Lake area will have little effect to heritage resources. The cultural resource in the area can be avoided during project implementation.

There are known sites at Hunter, the connector trail from the Trail Creek Whistle Stop and the existing Johnson Pass Trail. There is the potential for the stop and dispersed camping to have an effect to heritage resources. Any effects will be analyzed in accordance with Section 106 and Region 10 standards upon completion of the field surveys.

With the Whistle Stop project, there is a potential for numerous interpretive and educational opportunities in a region that has had little previous interpretation. There could be a benefit to heritage resources or a reduction of the effects through education, interpretation and monitoring of cultural resources. A list of possible opportunities and topics are located in the Heritage Specialist Report.

Alternative 3
Direct and indirect effects – Alternative 3 would lower any impacts to cultural resources by removing the Hunter and Trail Creek stops. Both areas are historic stops with multiple cultural resources. The potential for heritage resource impacts would also be lowered with the omission of the Bartlett cabin. While the location has yet to be surveyed, it is within a known historic district that is eligible for the National Register of Historic Places.

Alternative 4
Direct and indirect effects – Alternative 4 would lower any impacts to cultural resources by removing the Hunter, Trail Creek and Grandview stops. All three areas are historic stops with multiple cultural resources located at each stop. By dropping the proposed trails at Grandview, any direct effects to the heritage resources at those locations would be avoided.

Cumulative Effects
Past, present and future projects and activities within the area that may have cumulative effects are listed at the beginning of this chapter.

Cumulative effects can include the destruction of cultural resources over time. There potentially could be an increase in the disturbance, vandalism and looting of sites that are visible above the snow as a result of an increase in use and lack of monitoring. Additionally, an increase in historic trail use could lead to additional trail maintenance and unintentional damage.

The number and extent of heritage resources in the project area is unknown because a complete field inventory has not been completed. However, when the field surveys are completed in 2006, appropriate identification, evaluation, mitigation and monitoring will facilitate that any effects are mitigated and avoided where possible.

Minerals

Affected Environment

Locatable minerals (placer gold) and salable minerals (sand, gravel, and stone) are two classes of minerals that occur in the project area. Leasable minerals (oil, gas, etc) are not known to occur in the project area. There is a high potential for mineral development to occur at Spencer Glacier, and the remainder of the project area has a low potential for minerals activities. At Spencer Glacier, a mineral materials permit was active from 1978 to 1997, and mineral materials were mined during that period. There are valid placer mining claims, located for placer gold, covering the same ground as the previous mineral material permit area.

The stone deposit at Spencer Glacier consists of over 10 million cubic yards and is situated on the north side of Spencer Lake. The deposit is a proven, valuable commodity for large-sized armor stone, riprap, and other construction uses. From 1991 through 1997, it was produced for construction projects around the state and there is substantial and substantiated present interest in the resource.

The Spencer area contains a vast, high quality, sand and gravel deposit. This material has been extracted from a developed gravel pit near the railroad track, and has been used for a number of construction projects. There is substantial and substantiated present interest in this resource, as well.

Placer mining claims have existed since 1984 and occupy about 360 acres. The claims completely overlie the previous mineral material permit area. Gravel has been produced from the placer claims but no placer gold has been produced. There is currently an approved plan of operations for low impact hand sampling across the claim block. If justified by sampling and testing, bulk sampling may follow. Bulk sampling operations would consist of excavation of large samples up to 1,000 cubic yards total, and the use of dump trucks, backhoe/loaders, and large screening and concentrating plants.

Environmental Consequences

No Action Alternative

Direct, indirect and cumulative effects – This alternative would have no detrimental effects on mineral resource development above those already resulting from current use of the area. Presently, no minerals operations are occurring so no impacts are occurring. However, the Forest has approved a (locatable minerals) mining plan of operations for sampling placer gravel, and operations under that approval are expected to begin in 2006. Additionally, a mineral materials sale is being considered and may occur within the next 2 – 3 years, after which mining operations consisting of sand and gravel, and stone quarrying may occur. The current recreational uses will impact placer mining, gravel mining, and stone quarrying to some extent. Mining operations must mitigate visual impacts of their operations, from the permitted raft trips; noise levels will have to be mitigated by timing restrictions on operation of heavy equipment and blasting; operations boundaries (active mining) must be posted and monitored; reclamation activities must consider access for recreational visitors; visitors would be required to avoid active mining operations areas; and coordination would be required with the permitted recreational activities. Use of the main road/airstrip at Spencer is currently shared. If mining operations occur, recreational users and operators may be required to use separate routes. All of the measures stated above results in inconvenience and extra costs for the mining operator.

Proposed Action

Direct, indirect, and cumulative effects – Under this alternative, summer recreation use may increase substantially in the project area, both for day and overnight use. The Proposed Action will not directly affect winter recreation use. In general, the greater the use by recreation, the larger the impact to mining operations. The proposed action would have the most impact to mining operations of any alternatives considered.

The Forest Plan EIS states that there *could be a developed recreational complex (about 50 acres) at Spencer Glacier.* And further that: *"Although the complex and quarry could co-exist side-by-side physically, there would likely be conflicts because the quarry would be considered to be a visual impact to the glacier scene and the natural quiet would be disrupted in the vicinity by blasting and heavy equipment operating at the quarry."*

Negative impacts to mining could potentially take two forms. First, since a mineral materials contract is discretionary, the forest may determine that no permit would be offered because to do so may impact recreational use. Secondly, the contract may be offered but the mitigation measures to satisfy recreational users could preclude an economic mine. It may be feasible to offer a minerals sale with mitigation measures that sufficiently reduces impacts on recreation and allows for economic mining.

Locatable minerals operations are not discretionary and if placer mining occurs, it could have the same impacts that a minerals materials operation would have. The Forest can only impose reasonable mitigation measures and may not deny a reasonable [locatable] mining operation.

Alternative 1

Direct, indirect and cumulative effects – This alternative was developed to address the issue of potential conflict between recreation and mining activity in the Spencer Lake area. All proposed recreation facilities in the Spencer Lake area would be located south of the Spencer Lake outlet, outside the mineral material site area and outside of the active mining claims. The Spencer Whistle Stop platform would be included in this alternative as well as a trail from the platform that runs east/northeast through the mining claims and through the materials site area. In order to minimize conflicts with minerals development and mining, this trail should be relocated to run along the river and then along the north side of the lake, then turn north to connect with the Glacier Discovery Trail at the cabin site.

Although the Forest Plan allows for recreation facility development at Spencer Glacier, the location is not specific to the mineral materials site, and in fact could be located outside of the mineral materials and mining claims areas.

Alternatives 2, 3 and 4

Direct, indirect and cumulative effects – Alternatives # 2, #3, and #4 would have less impact to mineral development and mining operations than the Proposed Action (due to fewer proposed facilities in the Spencer Lake area), but more impact than No Action and Alternative 1 as the facilities that are proposed will be located in the same general area as potential mining operations.

Environmental Justice

In accordance with Executive Order 12898, all action alternatives were assessed to determine whether they would have disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority or low-income populations. This assessment included any programs, policies, and activities being considered. Public meetings were available to all people in and near the project area and advertised through the local media, newspaper, TV scanner, and local radio stations. See Chapter 1, Public Participation. Implementation of the action alternatives will not cause adverse health, social, or environmental effects that disproportionately affect minority and low-income populations.

Unavoidable Adverse Impacts

Implementation of any action alternative may cause some adverse environmental effects that cannot be effectively mitigated or avoided. Unavoidable adverse effects often result from managing the land for one resource at the expense of the use or condition of other resources.

Irreversible and Irretrievable Commitment of Resources

Irreversible commitments are decisions affecting non-renewable resources such as soils, wetlands, unroaded areas, and heritage resources. Such commitments are considered irreversible when the resource has deteriorated to the point that renewal can occur only over a great period of time, at great expense, or not at all. The destruction of an archaeological site is an example of an irreversible commitment. No irreversible effects are expected to occur as a result of this project.

Irretrievable commitments represent opportunities foregone for the period during which resource use or production cannot be realized. Such decisions are reversible, but the production opportunities foregone are irretrievable. Recreation use from this project will result in no irretrievable commitment of forest resources.

Chapter 4: Lists

List of Recipients

Copies of the Draft Environmental Impact Statement for the Whistle Stop Project, on the Kenai Peninsula of the Chugach National Forest, were sent to the following organizations, businesses, and individuals who submitted a public comment during the scoping period. In addition to the names listed below, a postcard was sent to the Chugach National Forest mailing list, alerting people to the start of the DEIS comment period, and explaining the various ways one could obtain a copy of the DEIS.

Organizations

The Wilderness Society and Alaska Center for the Environment
Sierra Club (Paul Forman, MD, Alaska Chapter Chair)
Alaska Quiet Rights Coalition (Susan Olsen, Treasurer)
Cascadia Wildlands Project
Wilder Construction
Alaska Railroad

Agencies

Alaska Department of Fish and Game
Environmental Protection Agency
State of Alaska Department of Natural Resources

Individuals

J. Dennis Stacey
Bonnie Swanson
William A. Quirk III
B. Sachau
Greg Durocher
Julie Obermeyer
Julian Mason
Mike O'Meara
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List of Preparers

Interdisciplinary Team

Contributor	Contribution
Adam McClory	Recreation Analysis and EIS Preparation
Grant Harris	Wildlife Analysis
Carol Huber	Minerals Analysis
Sean Stash	Fisheries Analysis
Bill MacFarlane	Hydrology Analysis
Dean Davidson	Soils Analysis
Betty Charnon	Vegetation Analysis
Lesli Schick	Heritage Analysis

Interdisciplinary Team Support Members

Contributor	Contribution
Steve Hennig	Recreation Analysis
John Eavis	Recreation Analysis
Tim Charnon	EIS Review/Prep.
Aaron Poe	Wildlife Analysis
Josh Milligan	EIS Review/Prep.
Sharon Randall	EIS Review/Prep.
Teresa Paquet	Special Uses Analysis
Susan Rutherford	EIS Review/Prep.

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Appendix A. Configuration of Proposed Recreation Facilities

Information/Education Yurt

Summary: The agency information/education yurt will be approximately 10' x 10' in size and utilized to distribute visitor information at Spencer Lake. This structure is estimated to impact no more than ½ acre.

Forest Service Public-use cabins

Summary: Cabins will generally follow the standard R10 public-use design standards. The overall capacity of the public-use cabins will remain similar to existing cabins, with a total capacity not to exceed eight per cabin. Outbuildings may include an outhouse within short proximity of the cabin and a wood shed adjacent to the cabin. The cluster of three cabins at Spencer will have one outhouse and wood shed between them. Each public-use cabin is estimated to impact approximately ½ acre.

Dispersed, hardened campsites

Summary: The dispersed, hardened campsites will provide a level, uniform surface for backpackers to camp along the Whistle Stop Trail system. These sites will be fairly primitive – the major impetus for development is to protect area resources by establishing camp locations that will effectively protect area water, soil, vegetation, wildlife and recreational resources. Types of amenities that may be included at these backcountry sites include: cleared, level ground; a wilderness latrine; fire ring; and bear-proof food locker. A strong emphasis will be placed on individual backcountry accountability – it will be highly recommended that users carry self-contained bear-proof food containers and self-contained human waste removal kits. Campsites will be designed to accommodate one group of users per site, with a total capacity not to exceed approximately 10 people. Dispersed, hardened campsites are estimated to impact no more than ¼ acre each.

Group use area

Summary: This area is designed to provide various levels of group camping opportunities. There will be a cleared level surface, food storage containers, a central fire ring, and vault toilet provided for user convenience. The major impetus for establishing developed locations is to effectively protect area water, soil, vegetation, wildlife and recreational resources. The group use area is estimated to impact approximately 2-5 acres.

Viewing platforms

Summary: The proposed wildlife and scenic viewing platforms will be approximately 40' x 60', and may include interpretive kiosks and viewfinders. Each viewing platform is estimated to impact approximately ¼ acre each.

Raft take out and put in locations

Summary: The rafting put in locations at Spencer and Hunter as well as the rafting take out locations at Luebner Lake and Trail Creek will include a platform that will allow for safe transfer of gear from the platform to the rail car. Additionally, at the take out sites a temporary storage facility (approximately 250 square feet) for rafting gear will be constructed and located at these locations from May-September. Use of these facilities will be for the main purpose of storing equipment used by outfitters and guides who conduct raft trips in the Spencer/Placer and Trail Creek areas. The estimated area of impact for the put in and take out locations is approximately ¼ acre each.

Trail system

Summary: There is an approximately 30-mile trail system proposed throughout the project area. The majority of the system will develop trails with an obvious and continuous, clearly defined trail tread that will generally be clear of major obstacles. A smaller portion of the trail system will be more highly developed with a smoother, wider tread that will generally involve more gradual increases or decreases in grade. Each mile of trail is estimated to impact approximately one acre on the ground.

Appendix B. Alaska Railroad *Glacier Discovery* Ridership, 2003-2005

Terminus of trip	2003	Riders/ day	2004	Riders/ day	2005	Riders/ day	Average Riders/yr.
Spencer	1,575	13	2,015	16	2,958	24	2,183
Grandview	1,133	9	1,305	11	1,223	10	1,220
Total	2,708		3,320		4,181		3,403

Season of use is typically between May 15-Sept. 15 (124 days). This number is used to determine the average number of riders per day and year.

Appendix C. Outfitter and Guide use related to the Project Area

			YEAR					
Permit Holder	**Season**	**Activity**	**2003 Authorized use**	**2003 Actual use**	**2004 Authorized use**	**2004 Actual use**	**2005 Authorized use**	**2005 Actual use**
Alaska Snow Safaris *	Winter/ spring	Snowmobile tours	575 service days (covers Placer & 20Mile Rivers & Turnagain Pass)	-0- Placer didn't open due to inadequate snow coverage	575 days allocated	248 days reported for Placer River	575 days allocated	Final use not submitted as of 12/13/05
Glacier City Snowmobile Tours *	Winter/ spring	Snowmobile tours Placer drainage, Spencer Lake	150 service days allocated	-0- Placer didn't open due to inadequate snow coverage	300 days allocated added Spencer glacier	242 days reported	300 days allocated	Final use not submitted as of 12/13/05
Chugach Powder Guides *	Winter/ Spring	Heli-Skiing	1,200 service days for CPG's operating area, use not restricted to any one unit. 4 CPG use areas overlap Whistle Stop project area.	531 service days	1,200 service days (includes entire operating area	404 service days	1,800 service days (includes other authorized core areas)	728 service days
Glacier City Snowmobile Tours	Summer	Snowmobile tours on Spencer Glacier	450 service days allocated	12 days reported	450 days allocated	71days reported	450 days allocated	No use, operation moved out of project area

			YEAR					
Permit Holder	**Season**	**Activity**	**2003 Authorized use**	**2003 Actual use**	**2004 Authorized use**	**2004 Actual use**	**2005 Authorized use**	**2005 Actual use**
Garrett's Angling Adventures	Summer	Sport fishing & sightseeing on Placer River	25 service days allocated	15 days reported	25 days allocated	No use reported	25 days allocated	10 days reported
Alaska Backcountry Bike Tours	Summer	Bike tours	150 service days allocated	37 days reported	150 days allocated	37 days reported	150 days allocated	33 days reported
Austin-Lehman	Summer	Mounting biking & hiking	25 service days allocated	38 days reported	25 days allocated	58 days reported	25 days allocated	59 days reported
Alaska Pacific University	Summer	Hiking & camping	----------	----------	----------	----------	80 days allocated	Final use not submitted as of 12/13/05
Class V	Summer	Rafting Placer River & Spencer Lake. Canoeing, hiking, camping, picnicking & basecamp @ Spencer Lake	1,500 service days allocated	1,342 days reported	5,000 days allocated (includes 1,000 for picnicking @ basecamp only)	1,814 days reported	5,000 days allocated	2,792
Wilkinson	Year round	Skiing in Placer Valley, canoeing on Placer River, hiking, camping, & mtn. biking on Johnson Pass trail	14 service days allocated	0 days reported	14 days allocated	0 days reported	14 days allocated	0 days reported
Alpine Air	Year round	Flight seeing on Spencer Glacier	20 days allocated for Spencer Glacier	3 service days reported	20 days allocated for Spencer Glacier	19 service days reported	40 days allocated for Spencer Glacier	20 days reported
Outer Limits *will not be renewing in 06*	Year Round	Sightseeing and day snowshoeing on Spencer Glacier	----------	----------	----------	----------	10 service days	0 days reported

*Skookum Glacier area located within the project area is closed to motorized use after March 31 of each year.

Appendix D – Winter Recreation Use on the Glacier and Seward Ranger Districts (*figures from Observations at Winter Access Points on the Glacier and Seward Ranger Districts)*

Access points in bold are areas of potential entry into the project area.

Glacier Ranger District (12/4/99 through 4/13/03)

Access point	Average Use per Weekend Day (#of vehicles)		Highest use per weekend day (# of vehicles)	
	Motorized	Non-motorized	Motorized	Non-motorized
Twentymile	3	<1	14	4
Placer River	**9**	**<1**	**35**	**7**
Ingram Drainage	<1	10	5	35
Turnagain Pass	32	14	128	40
Johnson Pass North	7	5	15	7

This data is based on observations of vehicles parked at the access point. A complete compilation of winter use access counts is available on request from the Glacier Ranger District.

Seward Ranger District (12/1/99 through 4/8/02)

Access point	Average Use per Weekend Day (#of vehicles)		Highest use per weekend day (# of vehicles)	
	Motorized	Non-motorized	Motorized	Non-motorized
Moose Pass Community	**4**	**0**	**20**	**0**
Johnson Pass South Trailhead	**2**	**<1**	**6**	**4**
Snow River	<1	3	4	6
Bear Creek	2	3	19	10
Lost Lake Trailhead	24	<1	56	6
Primrose Creek Trailhead	13	<1	30	1
Snug Harbor Road	24	<1	56	6

This data is based on observations of people at the trailhead (getting ready to leave or coming back from their trip) and vehicle counts with a base assumption of a certain number of people per the type of vehicle parked at the access point (i.e. number of snowmachines able to fit on one trailer, size of vehicle, etc.). A complete compilation of winter use access counts is available on request from the Seward Ranger District.

APPENDIX E: Biological Evaluation for Threatened, Endangered or Sensitive Species.

CHUGACH NATIONAL FOREST - Biological Evaluation

Date:
Project Name: Whistle Stop
District: Seward and Glacier Ranger Districts
Project Type: Recreational permit
Location: Seward and Glacier Districts.
Project Actions:
Vegetation/Habitat Type : Trails, cabins, camping and rafting in forest, riverine and alpine zones

I. Prior Biological Evaluation				**No**	**Yes**
Prior Project BE: Sensitive Plants	Date:				
Prior Project BE: Wildlife	Date:				
II. Species and/or Habitat				**No**	**Yes**
2. Previous Species Observation				X	
3. Federally Listed Species Present				X	
4. Habitat For Federally Listed Species Present				X	
5. Sensitive Species Present					X
6. Habitat For Sensitive Species Present					X
III. Analysis of Effects				**No**	**Yes**
1. Significant Habitat Alteration				X	
2. Effects Outside Project Area				X	
3. Cumulative Effects on Listed Species or Habitat				X	
4. Cumulative Effects on Sensitive Species or Habitat				X	
IV. Determination of Effects				**No**	**Yes**
1. No Affect Threatened, Endangered, or Proposed Species					X
2 May Affect Threatened, Endangered, or Proposed Species				X	
3. May Affect Individual Sensitive Species					X
4. May Affect Sensitive Species' Population Viability				X	
V. Consultation Requirements				**No**	**Yes**
1. Formal Consultation Required				X	
2. Additional Informal Consultation Required				X	

Based on the findings above and the size and effect of the proposed project, a detailed biological evaluation and further consultation are not required.

Appendix F. Projected Distribution of Recreation Use for the Whistle Stop Project.

Scenario with Existing Train service – 1 trip/day = 205 people

Phase	Total people/day	Camping/ Extended (20% of total people)	Spencer	Grandview	Luebner	Day trippers (80% of total people)	Spencer	Grandview	Luebner
Phase I – Spencer	**205**	41	41 (100%)	---	---	**164**	164 (100%)	---	---
Phase II – Spencer & Grandview	**205**	41	37 (90%)	4 (10%)	---	**164**	123 (75%)	41 (25%)	
Phase III – Spencer, Grandview & Luebner	**205**	41	33 (80%)	4 (10%)	4 (10%)	**164**	115 (70%)	33 (20%)	16 (10%)

- Bartlett is not constructed with the Existing train service scenario because the train is unable to start/stop on the steep grades where the Whistle Stop is proposed.
- Hunter and Trail Creek are not built because there would be no capability (time) to complete a day raft trip of Trail Creek (from Hunter to Trail Creek).

Scenario with DMU and Phasing – 4 trips/day = 672 people.

Phase VI is the distribution of use for the Proposed Action and Alternative 1. Phase V is the distribution of use for Alternative 2. Phase IV is the same distribution of use for Alternative 3. Alternative 4 is displayed as a separate line as the stops developed do not follow a Phasing pattern outlined below.

Phase	**Total people/ day**	**Camping/ Extended (20%)**	**S**	**G**	**B**	**L**	**TC**	**H**	**Day trippers (80%)**	**S**	**G**	**B**	**L**	**TC**	**H**
Phase I – Spencer	672	**134**	134 (100%)	---	---	---	---	---	**538**	538 (100%)	---	---	---	---	---
Phase II – Spencer, Grandview	672	**134**	121 (90%)	13 (10%)	---	---	---	---	**538**	404 (75%)	134 (25%)	---	---	---	---
Phase III – Spencer, Grandview, Bartlett	672	**134**	108 (80%)	13 (10%)	13 (10%)	---	---	---	**538**	376 (70%)	81 (15%)	81 (15%)	---	---	---
Phase IV – Spencer, Grandview, Bartlett, Luebner	672	**134**	95 (70%)	13 (10%)	13 (10%)	13 (10%)	---	---	**538**	376 (70%)	54 (10%)	54 (10%)	54 (10%)	---	---
Phase V – Spencer, Grandview, Bartlett, Luebner,Trail Creek	672	**134**	95 (70%)	15 (11%)	10 (7%)	10 (7%)	5 (5%)	---	**538**	376 (70%)	54 (10%)	54 (10%)	54 (10%)	---	---
Phase VI – Spencer, Grandview, Bartlett, Luebner, Trail Creek, Hunter	672	**134**	95 (70%)	11 (8%)	11 (8%)	11 (8%)	3 (3%)	3 (3%)	**538**	322[1] (60%)	54 (10%)	54 (10%)	54 (10%)	---	54 (10%)

[1] 10% taken from Spencer and placed under Hunter for projected day use rafting

Phase	Total people/ day	Camping/ Extended (20%)	S	G	B	L	TC	H	Day trippers (80%)	S	G	B	L	TC	H
Alt. 4 – Spencer, Luebner, Bartlett	672	**134**	108 (80%)	---	13 (10%)	13 (10%)	---	---	**538**	403 (75%)	---	81 (15%)	54 (10%)	---	---

Assumptions:

- Overall percent of day users (80%) and overnight users (20%) were taken from the Alaska Railroad/U.S. Forest Service business plan that was developed for the project. This percentage was derived by assessing the total potential market for the two broad user types and predicting how both Alaskans and out-of-state visitors would structure a recreation visit to the Whistle Stop area.
- The majority of day and overnight users will make Spencer a primary destination for their trip. The primary reasons for this are the proximity of natural attractions (glaciers, Spencer Lake, Placer River) and the proposed recreation facility developments.
- Development of a Whistle Stop at Grandview will draw a portion of day and overnight users from the Spencer area. Primary reasons include the proximity of natural attractions and the potential ability for users to increase their feeling of solitude in relation to the Spencer area.
- The Bartlett stop will provide users with the shortest hike to a glacier along the entire train route, therefore a Whistle Stop at this location will draw a number of day users from Spencer and Grandview. Users looking for fewer encounters than at Spencer will see Bartlett as an attractive option. The overnight facilities proposed for Bartlett will draw some users from the Spencer and Grandview areas.
- Development of Luebner Lake will primarily effect the distribution of day use throughout the project area. Watchable wildlife opportunities and the possibility of fewer encounters than at Spencer will draw some visitors to this location.
- With the ability to conduct day long raft trips on Trail Creek, a small percentage of day use (visitors engaged in rafting opportunities) will be redistributed from Spencer to Hunter.
- Two dispersed campsites were allocated to each Whistle Stop station. In addition, dispersed campsites were allocated equally along the Glacier Discovery Trail. This assisted with development of percentages of overnight use within the geographical area of each Whistle Stop.
- S= Spencer; G= Grandview; B= Bartlett; L= Luebner; TC= Trail Creek; H= Hunter

Appendix G. Levels of Site Modification – FSM 2300

Development Scale	Level of Site Modification
1	Minimum site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials excluded. Minimum controls are subtle. No obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access not provided or permitted.
2	Little site modification. Rustic or rudimentary improvements designed primarily for protection of the site rather than the comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle. Little obvious regimentation. Spacing informal and extended to minimize contacts between users. Motorized access provided or permitted. Primary access over primitive roads. Interpretive services informal, almost subliminal.
3	Site modification moderate. Facilities about equal for protection of site and comfort of users. Contemporary/rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls usually provided. Roads may be hard surfaced and trails formalized. Development density about 3 family units per acre. Primary access may be over high standard roads. Interpretive services informal, but generally direct.
4	Site heavily modified. Some facilities designed strictly for comfort and convenience of users. Luxury facilities not provided. Facility design may incorporate synthetic materials. Extensive use of artificial surfacing of roads and trails. Vehicular traffic control usually obvious. Primary access usually over paved roads. Development density 3-5 family units per acre. Plant materials usually native. Interpretive services often formal or structured.
5	High degree of site modification. Facilities mostly designed for comfort and convenience of users and usually include flush toilets; may include showers, bathhouses, laundry facilities, and electrical hookups. Synthetic materials commonly used. Formal walks or surfaced trails. Regimentation of users is obvious. Access usually by high-speed highways. Development density 5 or more family units per acre. Plant materials may be foreign to the environment. Formal interpretive services usually available. Designs formalized and architecture may be contemporary. Mowed lawns and clipped shrubs not unusual.